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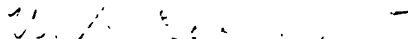








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Pilots and masters of vessels are earnestly requested to send information of dangers, notices of new shoals and channels, facts of interest to mariners, and suggestions for increasing the usefulness of charts or of these Tide Tables. A piece of the chart affected, showing the change proposed, should accompany the information supplied. This Office will replace, free of charge, any chart so used.

A limited number of CHART CATALOGUES, indicating the outlines of Coast and Geodetic Survey Charts, will be sent, free of charge, to any address.

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## CALENDAR FOR 1906.

CALENDAR FOR 1906.													
JANUARY.							JULY.						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
	1	2	3	4	5	6	1	2	3	4	5	6	7
7	8	9	10	11	12	13	8	9	10	11	12	13	14
14	15	16	17	18	19	20	15	16	17	18	19	20	21
21	22	23	24	25	26	27	22	23	24	25	26	27	28
28	29	30	31				29	30	31				
FEBRUARY.							AUGUST.						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
				1	2	3				1	2	3	4
4	5	6	7	8	9	10	5	6	7	8	9	10	11
11	12	13	14	15	16	17	12	13	14	15	16	17	18
18	19	20	21	22	23	24	19	20	21	22	23	24	25
25	26	27	28				26	27	28	29	30	31	
MARCH.							SEPTEMBER.						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
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4	5	6	7	8	9	10	2	3	4	5	6	7	8
11	12	13	14	15	16	17	9	10	11	12	13	14	15
18	19	20	21	22	23	24	16	17	18	19	20	21	22
25	26	27	28	29	30	31	23	24	25	26	27	28	29
							30						
APRIL.							OCTOBER.						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
1	2	3	4	5	6	7							
8	9	10	11	12	13	14	7	1	2	3	4	5	6
15	16	17	18	19	20	21	14	8	9	10	11	12	13
22	23	24	25	26	27	28	21	15	16	17	18	19	20
29	30						28	22	23	24	25	26	27
								29	30	31			
MAY.							NOVEMBER.						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
		1	2	3	4	5					1	2	3
6	7	8	9	10	11	12	4	5	6	7	8	9	10
13	14	15	16	17	18	19	11	12	13	14	15	16	17
20	21	22	23	24	25	26	18	19	20	21	22	23	24
27	28	29	30	31			25	26	27	28	29	30	
JUNE.							DECEMBER.						
Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
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3	4	5	6	7	8	9	2	3	4	5	6	7	8
10	11	12	13	14	15	16	9	10	11	12	13	14	15
17	18	19	20	21	22	23	16	17	18	19	20	21	22
24	25	26	27	28	29	30	23	24	25	26	27	28	29
							30	31					

## PREFACE.

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The following tide tables for the year 1906 have been prepared in the tidal division of the Coast and Geodetic Survey Office. They are essentially similar to the volumes for preceding years, but improved values have been introduced wherever better data could be made use of.

Tide tables for the use of mariners have been published by the Coast and Geodetic Survey every year since 1853. For the first fourteen years these tables appeared as appendixes to the Annual Reports of the Superintendent of the Survey, and consisted of more or less elaborated means for enabling the mariner to make his own tide predictions as occasion arose. The first attempt by this Survey to give predicted tides was by the issue of two pamphlets entitled "Tide Tables for the Atlantic Coast of the United States for the year 1867," and "Tide Tables for the Pacific Coast of the United States for the year 1867," respectively. The former contained the predicted times and heights of the high waters only for each day of the year 1867 at 15 stations, together with tidal constants and differences for 108 stations. The latter contained similar predictions for 4 stations, together with differences for 16 stations. This marked a distinct advance over the earlier tables which had been issued by this Survey.

The following year it was found desirable to include the low waters in all the predictions for the Pacific Coast, but for only one station on the Atlantic Coast, and it was not until the year 1887 that the low waters were given for all the Atlantic Coast stations. Commencing with the year 1896 the tide tables were extended to include the whole maritime world, practically as in the present volume.

The full predictions for Eastport, Me., which have been contained in all former issues of these tables, are discontinued for the year 1906, and St. John, New Brunswick, is given in its place. This change was made on account of the following considerations: We have four years of harmonic tidal constants with which to make predictions for St. John, and only a single year for Eastport; the tides at St. John afford a better standard port for reference than those at Eastport, and the commerce of St. John is very much greater than that of Eastport. If predictions are wanted for Eastport, they can readily be obtained from St. John by means of the differences given in Table 3.

We are now able for the first time to give full predictions for Auckland, New Zealand, in place of those formerly given for Port Russell.

In order to meet the demand for a cheap edition of the tide tables for the United States and adjacent waters, two reprints have been issued, one for the Atlantic Coast of the United States, including Canada and the West Indies, price 15 cents; and the other for the Pacific Coast of the United States, together with a number of foreign ports in the Pacific Ocean, price 10 cents.

This Survey acknowledges its indebtedness to the following-named authorities for valuable tidal information used in the preparation of these tables, in addition to the large number of observations already in its possession:

- W. D. Alexander, Surveyor-General Hawaiian Islands, tides at Honolulu, Hilo, and Kahului, H. I. (1899).  
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 Edwin B. Simpson-Baikie, Royal Mail Steam Packet Company, Southampton, England, tides at Margarita Island, Venezuela.  
 A. J. Pinto Basto, Lieut. Commanding the *Mindovy*, Portuguese Navy, Lisbon, Portugal (1897).  
 John Barrett, United States Consul-General (1894), Bangkok, Siam.  
 A. M. Beaupré, United States Minister (1905), Buenos Ayres, Argentina.  
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The predicted time and height of the high and low waters for 70 principal ports or stations are given in Table 1, pages 46-326, for each day throughout the entire year 1906. They have been made by means of the Ferrel tide machine, described in Appendix 10 of the Superintendent's Report for 1883. The harmonic constants used for these predictions, as well as the length of series analyzed, are given in Table 4 of this volume.

These stations are distributed as follows: 20 on the eastern and 7 on the western coast of North America, 4 in South America, 14 in Asia, 1 in Africa, 15 in Europe, and 9 in Oceania. They are usually referred to in this volume as principal or standard ports. These predictions are extended to about three thousand subordinate stations by means of the tidal differences and ratios of Table 3, pages 332-445. The predicted times of all the slack waters for the year 1906 are given for two stations, Seymour Narrows, British Columbia, and Sergius Narrows, Alaska, on pages 478-485.

An explanation of the tables, with examples of their use, is given on pages 25-38.

O. H. TITTMANN,  
*Superintendent.*

JUNE, 1905.

# INTRODUCTION.

## TREATISE ON TIDES.

1. The word *tide* is used to indicate the periodic rising and falling of oceanic and other large bodies of water, due mainly to the attraction of the moon and sun. This rising and falling necessitates a lateral or horizontal movement of the waters; such movements are called *tidal currents*. They usually flow and ebb somewhat in retard of the rising and falling of the tide. As the velocity and direction of tidal currents are much modified by extremely local causes, while the times and heights of the tides remain nearly constant over considerable areas, the currents may with propriety be made to depend upon the tides; for this reason their discussion will be postponed to § 11.

The tide rises until it reaches a maximum height called *high water*, and then falls until it reaches a minimum height called *low water*; these two phases of the tide may be spoken of as *the tides*. For a few minutes before and after high or low water it is difficult to observe any vertical motion in the tide; while thus apparently stationary the tide is said to *stand*. The duration of high or low water stand is usually too vague a quantity to be of much service in describing the character of the tide.

For reasons to be given later, based upon the fact that the tides are chiefly due to the difference between the moon's attraction upon the enveloping sea and the earth as a whole, one would expect that at most tidal stations two high waters and two low waters would occur each lunar day; in other words, to each transit of the moon (inferior as well as superior) there would correspond one high water and one low water. On an average the time of high water at a given station follows the time of transit by a certain number of hours and minutes called the *high water interval* (HWI) or *high water lunitidal interval*, or the *corrected establishment*. In like manner the *low water interval* (LWI) or *low water lunitidal interval* indicates the average number of hours and minutes between the time of transit and the time of low water.

According as the moon is in or near the perigee, apogee, or either tropic, the tides are distinguished as *perigean*, *apogean*, or *tropic* tides. *Spring tides* occur at about the time of new or full moon, and *neap tides* at about the time of either quarter. More definite notions in regard to these tides will be given in § 8.

### 2. *Directions for observing tides.*

Wherever tides are to be observed, the first thing to do is to fix a well-graduated vertical *staff* in as permanent a position as possible. A solid wall or pile will often furnish a suitable support. The heights of several bench marks above the zero of this staff should then be determined with considerable precision in order to detect any settling or rising in the support of the staff. These bench marks should be of a permanent character and situated at various distances from the staff. The object of such permanence is to enable one to recover the plane of reference at any future time.

*Direct staff readings.*—The staff and bench marks established, the observer should read the height of the tide at even intervals of time. Readings at the exact hours throughout the twenty-four hours of each day are preferable for most purposes. The kind of time used is immaterial, provided that it be the same throughout the series of observations. It should always be specified in the record. In making such observations it is of importance to know the time to within about one minute. In high and low water observations readings should

be made every ten minutes, say for about forty minutes before to forty minutes after each of the four tides of the day. In reading a height upon the staff, unless the surface of the water be perfectly smooth, note a point midway between the crest and trough of the waves. A glass tube open at both ends and held alongside the staff will facilitate making these readings. When the surface is, as a rule, too rough for staff readings, the water in a well communicating with the sea by means of a pipe half an inch or more in diameter should be observed instead.

*Box gauges.*—A box gauge consists of a long vertical box inclosing a float which rises and falls with the tide. In some cases the float carries a vertical rod which may itself be graduated; in others the float is attached to a wire or cord which passes over a pulley, then along a graduated scale, and terminates in a counterpoise. This gauge permits readings to be made when the sea is comparatively rough. A simple staff gauge should always be located near a box gauge and the readings of the two should be frequently compared, for it is obvious that the line of flotation is liable to become somewhat altered.

*Automatic or self-registering tide gauges.*—A gauge of this variety requires a float and box similar to those employed in a box gauge. The motion of the float, as it rises and falls, is communicated to a pencil which traces a curve upon a moving sheet of paper. Uniform motion is imparted to the paper by means of a cylinder or drum driven by a well-regulated clock. The pencil is free to move in a direction perpendicular to the line of motion of the paper. The paper, usually of sufficient length to contain a month's record, is paid out from one cylinder, passes over a second, and is received upon a third. This gauge, besides giving a continuous record, requires a comparatively small portion of the observer's time. Staff readings (upon a staff gauge) and time comparisons should be made at frequent intervals and recorded upon the tidal sheet or marigram. These staff readings should be made within an hour, say, of the times of high or low water.

### 3. *General properties of tides.*

Confining one's attention to a particular station, the following properties common to most tides are usually revealed by means of a few days' observation:

(1) Two high waters and two low waters occur during each twenty-four or twenty-five hours.

(2) The alternate high or low waters are more or less unequal.

(3) The heights of corresponding tides vary from day to day.

(4) The lunitidal intervals (high or low water) are different for alternate tides.

(5) The lunitidal intervals for corresponding tides vary from day to day.

(6) The inequality in height or interval referred to in (2) or (4) becomes greater as the moon's declination, either north or south, increases. This does not apply, because of the sun's tidal effect, to the lesser inequality at stations where the high and low waters are affected by quite unequal amounts.

(7) The range of tide (as determined from all four tides of the day) is <sup>greater</sup> than <sup>less</sup> usual near the time of <sup>new or full moon.</sup> the moon's quadrature.

(8) The range of tide is <sup>greater</sup> than usual near the time when the moon is in <sup>perigee.</sup> <sup>less</sup> apogee.

(9) The lunitidal intervals are <sup>shorter</sup> than usual near the times of the <sup>first and fifth</sup> <sup>longer</sup> third and seventh octants.

The above statements do not usually apply to the tides at stations where but one high and one low water occur daily. The readily observable properties of such tides are:



[1] But one high and one low water occur daily when the moon is far from the equator.

[2] Two high and two low waters, both comparatively small, may occur daily when the moon is near the equator.

[3] The moon being far from the equator, the (diurnal) range of tide is <sup>increased</sup> ~~decreased~~ near the time of either <sup>solstice.</sup> ~~equinox.~~

*The equilibrium theory of tides.*

The uncorrected equilibrium theory begins by assuming—

(1) That the nucleus of the earth is comparatively rigid (or that at least its outer layer is a rigid shell), and that it is composed of concentric spherical layers, each layer having a constant density.

(2) That the nucleus is covered by a fluid of uniform depth, shallow as compared to the radius of the nucleus, but deep as compared to the rise and fall of tide.

(3) That this fluid has neither inertia nor viscosity, nor is there friction between the fluid layer and the nucleus or the enveloping atmosphere.

As these conditions are far from being realized in the case of nature, observations will show at best only certain approximations toward ideal values. Before introducing the modifications necessary to adapt the theory to the tides, it seems desirable to ascertain what the tendencies are in the ideal case.

Since the angular velocity of the moon in her orbit and the rotary motion of the earth's surface are finite, while the particles of fluid are supposed to respond *immediately* to the forces acting upon them, we may consider the earth's surface as stationary during any given instant, and treat the surface assumed by the water as a case of static equilibrium.

Because of hypothesis (1), the attraction of the moon upon the nucleus is the same as it would have been had the entire mass been concentrated at the earth's center.

At any given place the tide-producing tendencies depend chiefly upon the distance and direction of the disturbing body, and are governed by what may be referred to as Laws I and II.

*Law I.*—The tendency to produce tides at a given station varies directly as the mass of the disturbing body and inversely as the cube of the body's distance from the earth's center.

In consequence of this law the amplitude of the solar tide ought to be about 0.458 time that of the lunar tide. For the mass of the sun = 331 000, and the mass of the moon = 1/81, the mass of the earth being unity, while the sun's distance = 92 800 000 miles and the moon's distance = 239 000 miles, so that—

$$\text{solar tide: lunar tide} = \frac{331\,000}{(92\,800\,000)^3} : \frac{1}{81} \times \frac{1}{(239\,000)^3}; \quad (1)$$

$$\therefore \text{solar tide} = 0.458 \text{ lunar tide.} \quad (2)$$

The eccentricity of the lunar orbit being 0.055, this law gives

$$\text{perigean range: mean range} = \frac{1}{(1 - \text{eccentricity})^3} : 1, \quad (3)$$

$$\text{apogean range: mean range} = \frac{1}{(1 + \text{eccentricity})^3} : 1, \quad (4)$$

$$\therefore \text{perigean range} = 1.18 \text{ mean range,} \quad (5)$$

$$\text{apogean range} = 0.85 \text{ mean range.} \quad (6)$$

*Law II.*—The tendencies to produce tide for various relative positions of the tide-producing body are proportional to

$$3 \cos^2 \theta - 1, \quad (7)$$

where  $\theta$  is the zenith distance of the body corrected for parallax. In other words,  $\theta$  is the angle at the earth's center defined by the given station and the center of the disturbing body.

If  $u$  denote the height of tide expressed in terms of the earth's radius,  $a$ , then it is proportional to  $3 \cos^2 \theta - 1$ ; in other words, we may put  $u = \alpha' (3 \cos^2 \theta - 1)$ . The equation of the surface of the sea at any given instant is

$$\rho = a (1 + u), \quad (8)$$

or

$$\rho = a + a \alpha' (3 \cos^2 \theta - 1), \quad (9)$$

which is the equation of an ellipsoid whose semiaxes are

$$a (1 + 2 \alpha'), a (1 - \alpha'), a (1 - \alpha'). \quad (10)$$

That is, forces acting according to this law cause the surface of the sea to assume the form of an ellipsoid of revolution whose longest axis points toward the tide-producing body.

It will be observed that when the moon, say, is in the zenith (or nadir), the elevation of the sea is  $2 a \alpha'$  higher because of the existence of the moon; but when in the horizon, the elevation of the sea is  $a \alpha'$  lower.

For a given place the height of the tide will vary from hour to hour of the day chiefly on account of the variations in  $\theta$ ; but, as already noted, it varies somewhat on account of the variation in  $r$ , the moon's distance.

For a given place the angle  $\theta$  depends upon the moon's hour angle and its declination both of which are functions of time. From spherical trigonometry,

$$\cos \theta = \cos \lambda \cos \delta \cos (\psi - l) + \sin \lambda \sin \delta \quad (11)$$

where

$\lambda$  = geographic latitude of the station,

$l$  = longitude of the station (W. from Greenwich),

$\delta$  = moon's declination,

$\psi = mt$  = moon's hour angle (W. from the meridian of Greenwich).

$$\begin{aligned} \therefore a \alpha' (3 \cos^2 \theta - 1) &= \frac{3}{4} a \alpha' \cos^2 \lambda \cos^2 \delta \cos 2 (\psi - l) \\ &+ 3 a \alpha' \sin \lambda \cos \lambda \sin 2 \delta \cos (\psi - l) \\ &+ \frac{1}{4} a \alpha' (3 \sin^2 \lambda - 1) (3 \sin^2 \delta - 1) \\ &= \text{height of tide according to the uncorrected equilibrium theory.} \end{aligned} \quad (12)$$

For the lunar tide,

$$a \alpha' = \frac{1}{4} \frac{\text{mass of moon}}{\text{mass of earth}} \times \frac{a^4}{(\text{moon's distance})^3} = 0.59 \text{ feet}; \quad (13)$$

and for the solar tide,

$$a \alpha' = \frac{1}{4} \frac{\text{mass of sun}}{\text{mass of earth}} \times \frac{a^4}{(\text{sun's distance})^3} = 0.27 \text{ feet.} \quad (14)$$

(i) The height of the semidiurnal portion of the lunar or solar tide at a given station is proportional to the cosine of twice the local hour angle of the moon or sun multiplied by the square of the cosine of its declination. The factor depending upon the declination is always near unity.

(ii) The height of the diurnal portion of the lunar or solar tide at a given station is proportional to the cosine of the local hour angle of the moon or sun multiplied by the sine of twice its declination. The factor depending upon the declination varies almost directly with the declination.

(iii) There is a portion of the lunar or solar tide which depends, at a given station, wholly upon the declination of the moon or sun. The height of this portion is proportional to  $3 \sin^2 \delta - 1$ , where  $\delta$  represents the declination of the moon or sun. The period of this expression is a half tropical month or year, as the case may be.

The height of the entire tide, or of the surface of the sea, at any given time and place, is the sum of the six terms just referred to—three belonging to the moon and three to the sun.

*The corrected equilibrium theory.*—To approximately adapt the foregoing theory to the case of nature, we may write the height of the lunar or solar tide in the form

$$\begin{aligned} & R_2 \cos^2 \delta \cos [2 (\psi - l) - \epsilon_2] \\ & + R_1 \sin 2 \delta \cos [\psi - l - \epsilon_1] \\ & + R_0 [3 \sin^2 \delta - 1] \end{aligned} \quad (15)$$

where  $R$  and  $\epsilon$  must be determined from observations at the given stations. Statements (i), (ii), and (iii) require no modification, except that for "hour angle" we must write "hour angle diminished by a constant appropriate for the station in question" and so for "twice the hour angle."

This correction is theoretically necessary (even if the water have neither inertia nor friction) because the earth's surface is not wholly covered with water, and the equation of continuity can not generally be satisfied when the rise and fall is as given by equation (12) unless we continually alter the plane of reference.

The  $R$ 's, as did the  $\alpha$ 's, involve the factor

$$\left( \frac{\text{mean distance of moon}}{\text{actual distance of moon}} \right)^3 = \left( \frac{c}{r} \right)^3 = \left( \frac{\text{actual parallax}}{\text{mean parallax}} \right)^3$$

In practice the inertia and friction of the water produce important modifications in the  $R$ 's and  $\epsilon$ 's from their equilibrium values. Nevertheless, the *form* (15) is capable of approximately representing the rise and fall of the tide in nature. This is especially true, if we make the further modification of taking  $\delta$  and  $r$  at times anterior to the time of tide. Such times, as well as the  $R$ 's and  $\alpha$ 's must be determined from observations made at the given station.\*

#### 5. *Explanation of phenomena noted in § 3 by the equilibrium theory.*

The tides in (i), § 4, are semidiurnal, while those in (ii) are diurnal. Each may, for any particular day, be represented by a cosine curve of proper length (period) and amplitude. Now it is obvious that the superposition of a diurnal curve upon a semidiurnal will, in general, cause the alternate maxima or minima of the semidiurnal curve to become more or less unequal in height and unequally displaced in time. These statements account for (1), (2), and (4) of § 3. As noted in (ii), § 4, the amplitude of the diurnal curve (lunar or solar) is nearly proportional to the declination of the moon or sun. This explains property (6), § 3.

The superposition of a semidiurnal curve or wave upon another of nearly equal period, but of greater amplitude, simply increases or decreases the amplitude of the latter when approximately like or opposite phases coincide; but when the phases differ by approximately  $90^\circ$  or  $270^\circ$  the principal wave is displaced in time by the subordinate one—accelerated or retarded according as the maximum, say, is  $90^\circ$  in advance or in retard of the maxima of the principal wave. This accounts for properties (3), (5), (7), and (9), § 3. Property (8) has been explained in § 4, where the values of the perigeon, apogean, and mean ranges are compared. This amounts to varying the  $\alpha'$  or the  $R$ 's inversely as the cube of the moon's distance from the earth's center.

At a station where observation shows that  $R_1$  is several or many times as great as  $R_2$ , expression (15), the number of maxima and minima of a curve composed of diurnal and semidiurnal parts will usually depend upon the number of maxima and minima of the diurnal part when the moon's declination is great; but when the moon is near the equator the number may be governed by the semidiurnal part. This accounts for properties [1] and [2], § 3. The moon crosses the equator and reaches its extreme declination at nearly the same points in the heavens as does the sun. This accounts for property [3].

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\* Cf. Thomson and Tait's Natural Philosophy, §§ 804-811.

6. A still more perfect form or expression for the equilibrium theory is obtained by developing the tide-producing potential (the principal part of which is inversely proportional to the cube of the disturbing body's distance from the earth's center, and directly proportional to  $3 \cos^2 \theta - 1$ , § 4) into a series of cosine terms. For considerable periods of time the coefficients of these terms remain sensibly constant and their angles or arguments increase uniformly with the time. Having found from the development of the potential what are the more important terms, one then assumes that by leaving all amplitudes and epochs arbitrary the series is, by the principle of forced oscillations,\* capable of representing the tide at any given station. The harmonic analysis, § 7, has for its object the determination of these amplitudes and epochs from tidal records.

7. *Harmonic analysis.*†

Since the tide is periodic in its character, and since the periods of its causes are known from astronomical considerations, it ought to be possible to represent the height at any given time by means of the Fourier series, or, rather, an aggregation of such series,

$$y = A \cos (at + \alpha) + B \cos (bt + \beta) + \dots \quad (16)$$

where  $y$  is reckoned from mean sea level.

For aiding the imagination, we may suppose that any given term in this series represents the oscillation caused by a fictitious star, or moon, moving uniformly in the celestial equator around the earth, and at a constant distance therefrom, having the property of producing a maximum of the oscillation, or component tide, a certain number of hours after its upper meridian passage, and a minimum the same number of hours after its lower meridian passage.

If  $A$  denote the hourly speed of the component  $A$ , or the apparent angular velocity of its fictitious moon, and  $A^\circ$  its epoch or lag expressed in degrees,  $A^\circ/a$  is the lag expressed in hours. Also if  $\arg_0 A$  denote the hour angle of the fictitious moon at local mean midnight,  $at + \arg_0 A$  is its hour-angle at any subsequent hour  $t$ . Consequently the time of high water of the component  $A$  is

$$t = \frac{A^\circ}{a} - \frac{\arg_0 A}{a}, \quad (17)$$

and the height at any time  $t$  is

$$A \cos (at + \arg_0 A - A^\circ) \quad (18)$$

so that

$$\alpha = \arg_0 A - A^\circ. \quad (19)$$

By replacing  $A$ ,  $A^\circ$ ,  $a$ , and  $\alpha$  by  $B$ ,  $B^\circ$ ,  $b$ , and  $\beta$ , the corresponding quantities for any other component,  $B$ , are obtained.

The heights due to any components may be shown graphically thus (see Fig. 1):

Lay off the hours of the day according to any convenient scale. Draw cosine curves of amplitudes  $A$ ,  $B$ , . . . and of periods  $\frac{360}{a}$ ,  $\frac{360}{b}$ , . . . hours in length. The first maxima are located upon the hour lines

$$\frac{A^\circ}{a} - \frac{\arg_0 A}{a}, \quad \frac{B^\circ}{b} - \frac{\arg_0 B}{b} \quad \dots; \quad (20)$$

the succeeding maxima are then fixed by the lengths of the several periods. The symbol  $\mathfrak{D}$  may be used to indicate the time of transit of any fictitious moon.

To combine these curves, add the ordinates for each hour, thus obtaining the resultant tidal curve from which the times and heights of high water and low water may be obtained.

The object of the harmonic analysis is to resolve the observed tide—i. e., observed heights of the surface of the sea—into simple elements of component tides, consisting of simple

\*See Laplace, *Méc. Cél.*, IV, iii, § 16.

†See an article entitled *Harmonic Analysis of Tidal Observations*, by Prof. G. H. Darwin, B. A. A. S. Report, 1883; also, article *Tides*, *Encyclopædia Britannica*, ninth edition.



From these values of  $A$ ,  $\bar{A}$ , we find  $A$  and  $\alpha$  by the relations

$$A = (\bar{A}^2 + \bar{A}^2)^{1/2}, \tan \alpha = -\frac{\bar{A}}{A}. \quad (23)$$

$A^\circ$  then becomes known by the equation

$$A^\circ = \arg_0 A - \alpha, \quad (24)$$

$\arg_0 A$  being known from astronomical considerations.\* So for components  $B$ ,  $C$ , etc.

It may be added that because the hourly heights are tabulated in solar time, most of the amplitudes as brought out in the analysis must be increased by a factor a little greater than unity, known as the augmenting factor; also that most of these amplitudes must be corrected for the longitude of the moon's node by the application of a suitable factor. For series less than about a year in length, still other corrections must be applied.

#### 8. Terms sometimes useful in describing tides.

*Mean range* (Mn) is the average value of the semidaily range of tide.

*Spring range* (Sg) is the greatest periodic semidaily range occurring usually one or two days after new and full moon.

*Neap range* (Np) is the smallest periodic semidaily range occurring usually one or two days after the moon is in quadrature—that is, after the first and third quarters.

*Perigean range* (Pn) is the greatest periodic semidaily range of tide occurring usually from one to three days after the moon is in perigee.

*Apogean range* (An) is the smallest periodic semidaily range occurring usually from one to three days after the moon is in apogee.

*Great diurnal range* (Gt) is the difference between the mean of all the higher high waters (HHW) and the mean of all the lower low waters (LLW) of each day during one or more half tropical months.

*Small diurnal range* (Sl) is the difference between the mean of all the lower high waters (LHW) and the mean of all the higher low waters (HLW) of each day during one or more half tropical months.

*Great tropic range* (Gc) is the greatest periodic daily range of tide usually occurring soon after the moon is farthest north or south from the equator and therefore near one of the tropics.†

*Small tropic range* (Sc) is the smallest periodic daily range of tide usually occurring soon after the moon is farthest north or south from the equator and therefore near one of the tropics.†

Tides determining the above ranges, or of simultaneous occurrence, may be referred to as *spring*, *neap*, *perigean*, *tropic*, etc.; a like remark is applicable to lunital intervals, and occasionally to other quantities.

An *inequality* in the tide is, or implies, a departure, in time or amplitude, from the mean tide at a given station. The inequality having the period of a half lunation is the *phase inequality*; that having an anomalistic month is the *parallax inequality*; that which causes the two high waters or two low waters of a day to differ is called the *diurnal inequality*.

The *age* of an inequality is the amount of time by which it follows its astronomical cause. The ages, in hours, of the phase, parallax, and diurnal inequalities are given by the expressions

$$\frac{S_2^\circ - M_2^\circ}{1.016} = 0.984 (S_2^\circ - M_2^\circ), \quad \frac{M_2^\circ - N_2^\circ}{0.544} = 1.837 (M_2^\circ - N_2^\circ), \quad \frac{K_1^\circ - O_1^\circ}{1.098} = 0.911 (K_1^\circ - O_1^\circ),$$

\* The arguments for January 1 of each year from 1850 to 1950 are given upon pages 195–204, Part II, U. S. Coast and Geodetic Survey Report for 1894.

† Strictly speaking, it is assumed to occur  $0.911 (K_1^\circ - O_1^\circ)$  hours after the moon's extreme declination, as shown below

respectively, where the letters are the epochs or lags ( $\ast$ ) of the harmonic components represented by them; their numerical values can be found in Table 4, for each of the seventy standard ports; and these ages are usually nearly constant over a considerable area. These times represent the retard of the spring and neap, the perigean and apogean, and the tropic tides, respectively, behind their astronomical causes.

*Tropic diurnal inequality* (HWQ, LWQ) as here used denotes the greatest periodic difference in height between two consecutive high waters or low waters, usually occurring soon after the moon is farthest north or south from the equator; this inequality is determined by the tropic tides, although the smaller inequality at some stations may not then have, even approximately, its maximum value.

*Diurnal wave* is that portion of the tide whose period is approximately one day.

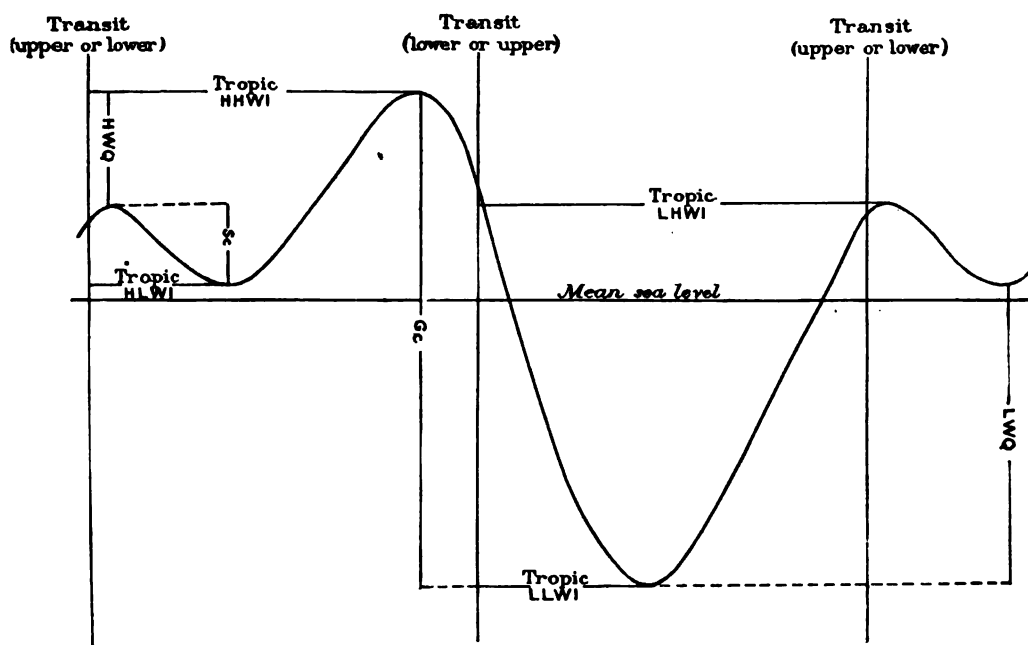


Fig. 2.

*Sequence of tide* is the order in which the four tides of a day occur, particularly when the moon is far from the equator. It may be expressed thus, HHW to LLW or LLW to HHW as the case may be. The former expression indicates that tropic LLW follows tropic HHW as the case may be. The latter expression indicates that tropic LLW precedes tropic HHW without the lesser tides intervening. The time between tropic LLW and tropic HHW must be taken as less than a half lunar day. At some stations it is necessary to have both sun and moon far from the equator in order to fix the sequence.

*Type of tide* is the characteristic form of the tide. It is generally indicated by the sequence of tides, together with the ratios of each of the tropic diurnal inequalities, and of the spring range, to the mean range. For shallow waters, however, in rivers especially, the duration of rise or fall may become very important.

Figure 2 illustrates the tropic tides and quantities connected with them at San Francisco. In this case the tide is largely diurnal, the sequence is HHW to LLW, and  $LWQ > HWQ$ .



9. *Approximate theoretical relations between the various ranges, intervals, planes of reference, etc.*

$$2 \text{ Mn} = \text{Sg} + \text{Np} + \frac{(\text{Sg} - \text{Np})^2}{\text{Sg} + \text{Np}}.$$

$$2 \text{ Mn} = \text{Gt} + \text{Sl}.$$

$$\text{Gc} - \text{Sc} = \text{HWQ} + \text{LWQ}.$$

For the great diurnal range (Gt) three cases are considered:

(1)  $\text{Gt} = \frac{3}{4} \text{Gc} + \frac{1}{4} \text{Mn}$ , when either HWQ or LWQ (or both) exceeds  $\frac{\text{Mn}}{4}$ .

(2)  $\text{Gt} = \text{Mn} + \frac{1}{4} (\text{HWQ} + \text{LWQ})$ , when both HWQ and LWQ are less than  $\frac{\text{Mn}}{4}$ .

(3)  $\text{Gt} = 0.64 \left( \text{Gc} + \frac{[\text{Mn}]^2}{\text{Gc}} \right)$ , when the tide is chiefly diurnal.

For the depression of mean lower low water below mean low water three cases are considered:

(1)  $\text{LW} - \text{LLW} = \frac{\text{LWQ}}{3} + \frac{.04 (\text{Gc} - \text{Mn})^2}{\text{LWQ}}$ , when  $\text{LWQ} > \text{HWQ}$ , and also exceeds  $\frac{\text{Mn}}{4}$ .

(2)  $\text{LW} - \text{LLW} = \frac{1}{4} (\text{Gc} - \text{Mn}) - \frac{\text{HWQ}}{3} - \frac{.04 (\text{Gc} - \text{Mn})^2}{\text{HWQ}}$ , when  $\text{HWQ} > \text{LWQ}$ , and also exceeds  $\frac{\text{Mn}}{4}$ .

(3)  $\text{LW} - \text{LLW} = \frac{\text{LWQ}}{3}$ , when HWQ and LWQ are each less than  $\frac{\text{Mn}}{4}$ .

When the tide is chiefly diurnal there is no mean low water, in the sense in which it is used above.

In obtaining the duration of rise or fall of tide from the following equations, add 12<sup>h</sup> 25<sup>m</sup> when necessary to make the result positive.

$$\text{Duration of rise} = \text{HWI} - \text{LWI}.$$

$$\text{Duration of fall} = \text{LWI} - \text{HWI}.$$

The sum of the four tropic lunitidal intervals is equal to twice the sum of the two mean intervals, thus:

$$\text{HHWI} + \text{LHWI} + \text{HLWI} + \text{LLWI} = 2 (\text{HWI} + \text{LWI}).$$

In Table 3, of these Tide Tables, only two of the tropic intervals are given, and the other two tropic intervals may be obtained from the following approximate relations:

$$\text{Tropic LHWI} = 2 \text{ HWI} - \text{tropic HHWI},$$

$$\text{Tropic HLWI} = 2 \text{ LWI} - \text{tropic LLWI}.$$

The heights of the tide are all referred to some one of the following three planes of reference: Mean low water, mean low-water springs, and mean lower low water. The definition of each plane as used in these tables is given here by an expression which indicates its depression in feet below mean sea level.

(1) *Mean low water* =  $\frac{\text{Mn}}{2}$ , where Mn is the mean semidiurnal range.

(2) *Mean low water springs* =  $\frac{\text{Sg}}{2}$ , where Sg is the mean range of spring tide.

(3) *Mean lower low water* depends upon the diurnal inequalities in high and low water, and there are four cases considered:

(a) =  $\frac{\text{Mn}}{2} + \frac{\text{LWQ}}{3} + \frac{.04 (\text{Gc} - \text{Mn})^2}{\text{LWQ}}$ , when  $\text{LWQ} > \text{HWQ}$ , and exceeds, say,  $\frac{\text{Mn}}{4}$ .

(b) =  $\frac{3\text{Gc}}{4} - \frac{\text{Mn}}{4} - \frac{\text{HWQ}}{3} - \frac{.04 (\text{Gc} - \text{Mn})^2}{\text{HWQ}}$ , when  $\text{HWQ} > \text{LWQ}$ , and exceeds, say,  $\frac{\text{Mn}}{4}$ .

(c) =  $\frac{\text{Mn}}{2} + \frac{\text{LWQ}}{3}$ , when HWQ and LWQ are each less than about  $\frac{\text{Mn}}{4}$ .

(d) =  $0.64 \left( 1 + \frac{[\text{Mn}]^2}{\text{Gc}^2} \right)$  (Mean sea level - tropic LLW), when the tide is chiefly diurnal.

10. *The effects of the moon's parallax and phases upon the times and heights of the tides.*

The tables given below enable one to approximately take account of the effect of the moon's distance upon the range of tide, and also the variations in time and height due to the relative positions of the sun and moon.

FACTOR EXPRESSING THE EFFECT OF THE MOON'S PARALLAX UPON THE MEAN RANGE OF TIDE.

Time.	Factor q.	Time.	Factor q.	Time.	Factor q.	Time.	Factor q.
<i>d.</i>		<i>d.</i>		<i>d.</i>		<i>d.</i>	
After perigean tides.		Before apogean tides.		After apogean tides.		Before perigean tides.	
0	1.17	7	0.99	0	0.86	7	0.98
1	1.16	6	0.98	1	0.86	6	1.02
2	1.15	5	0.93	2	0.87	5	1.06
3	1.13	4	0.90	3	0.88	4	1.09
4	1.09	3	0.88	4	0.90	3	1.13
5	1.06	2	0.87	5	0.93	2	1.15
6	1.02	1	0.86	6	0.96	1	1.16
7	0.98	0	0.86	7	0.99	0	1.17

In making use of these tables for prediction purposes, the mean range (Mn) should be first multiplied by the factor  $q$  expressing the parallax effect; this corrected range should then be used in ascertaining the variation due to phase in the lunital interval and in obtaining the semirange of tide.

TABLE OF PHASE EFFECTS.

Time.	Increase in lunital intervals.	Increase in semi-range of tide.	Time.	Increase in lunital intervals.	Increase in semi-range of tide.	Date.	Factor p.*
<i>d. h. m.</i>	$\frac{Sg-Np}{Mn \times q}$	$+ .23p(Sg-Np)$	<i>d. h. m.</i>	$\frac{Sg-Np}{Mn \times q}$	$-.29p(Sg-Np)$		
After spring tides.			After neap tides.				
0 00	0	+	0 00	0	-	Jan. 1	0.82
0 06	-5	+	0 06	+13	-	11	0.88
0 12	-10	+	0 12	+25	-	21	0.96
0 18	-14	+	0 18	+35	-	31	1.04
1 00	-19	+	1 00	+44	-	Feb. 10	1.13
1 06	-23	+	1 06	+52	-	20	1.20
1 12	-28	+	1 12	+58	-	Mar. 2	1.25
1 18	-32	+	1 18	+62	-	12	1.27
2 00	-37	+	2 00	+65	-	22	1.28
2 06	-41	+	2 06	+66	-	Apr. 1	1.26
2 12	-44	+	2 12	+67	-	11	1.22
2 18	-49	+	2 18	+67	-	21	1.14
3 00	-52	+	3 00	+66	-	May 1	1.06
3 06	-56	+	3 06	+64	-	11	0.96
3 12	-59	+	3 12	+62	-	21	0.87
3 18	-61	+	3 18	+60	+	31	0.77
4 00	-63	-	4 00	+57	+	June 10	0.71
						20	0.67
						30	0.68
						July 10	0.74
						20	0.82
						30	0.92
						Aug. 9	1.01
						19	1.10
						29	1.18
						Sept. 8	1.23
						18	1.26
						28	1.26
						Oct. 8	1.24
						18	1.20
						28	1.14
						Nov. 7	1.06
						17	0.97
						27	0.89
						Dec. 7	0.83
						17	0.79
						27	0.80
						Jan. 6	0.85
Before neap tides.			Before spring tides.				
4 00	-57	+	4 00	+63	-		
3 18	-60	+	3 18	+61	+		
3 12	-62	+	3 12	+59	+		
3 06	-64	-	3 06	+56	+		
3 00	-66	-	3 00	+52	+		
2 18	-67	-	2 18	+49	+		
2 12	-67	-	2 12	+44	+		
2 06	-66	-	2 06	+41	+		
2 00	-65	-	2 00	+37	+		
1 18	-62	-	1 18	+32	+		
1 12	-58	-	1 12	+28	+		
1 06	-52	-	1 06	+23	+		
1 00	-44	-	1 00	+19	+		
0 18	-35	-	0 18	+14	+		
0 12	-25	-	0 12	+10	+		
0 06	-13	-	0 06	+5	+		
0 00	0	-	0 00	0	+		

\*The factor  $p$  applies to the "increase in the semirange of tide," and not to the "increase in lunital intervals." It is due to the declinations of the sun and moon and to the solar parallax.

In the column headed "Increase in lunitidal intervals" the negative values are often spoken of as the *priming* and the positive ones as the *lagging* of the tide.

The *vulgar establishment*, being the interval at "full and change," may be obtained from the mean lunitidal interval by entering this table as many hours before spring tides as are contained in the age of the phase inequality, § 8.

### 11. *Tidal currents.*

The *velocity (drift)* of a current is the rate at which the fluid particles move horizontally. It is usually expressed in knots, i. e., nautical miles, per hour, but sometimes in feet per second. The velocity generally differs for different depths, but its value at the surface may be understood unless otherwise specified. The velocity of propagation of the tidal wave is many times greater than the velocity of the current, and the two must not be confounded.

The *direction (set)* of a current is the direction or point of the compass toward which the fluid particles move.

The movement of the fluid in one direction, usually inland, is styled *flood*, and in the opposite direction, *ebb*. The two are not always distinct, and, even if they are, it is not always possible to know which movement should be taken for the flood and which for the ebb.

*Slack water* denotes the state of the current when its velocity becomes a minimum.

The effect of the tidal wave in giving rise to currents may be seen in two simple cases:

- (1) Where there is a small tidal basin connected with the sea by a large opening.
- (2) Where there is a large tidal basin connected with the sea by a very small opening.

In the first case the velocity of the current in the opening will have its maximum value when the height of the tide within is changing most rapidly, i. e., at a time about midway between high and low water. The water in the basin keeps at approximately the same level as that of the water outside. Flood corresponds to the rising, and ebb to the falling tide within. E. g. the Golden Gate, Cal.

In the second case the velocity of the current in the opening will have its maximum value when it is high water or low water without; for then there is the greatest head of water for producing motion. Flood begins about three hours after low water, ebb about three hours after high water; that is, slack water occurs at times about midway between the tides.

In an unobstructed wave, the flood velocity is a maximum at about the time of high water, and the ebb velocity becomes a maximum near the time of low water.

In a stationary wave, the slack waters are almost simultaneous with the high and low waters.

In some bodies of water, particularly long channels, such as tidal rivers, the directions of the currents are obviously governed by the trend of the banks; but in broader bodies, especially near the heads of gulfs and bays, the directions taken by the particles of water are not easily explained. It is quite common in such cases to find no true slack water, while the direction of the current shifts continually with the varying phases of the tide.

### 12. *References.*

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Newton's *Principia*, Book I, Prop. LXVI; Book III, Props. XXIV, XXXVI, and XXXVII.

Laplace's *Traité de Mécanique Céleste*, Books IV and XIII.

Bibliographie générale de l'Astronomie, Houzeau and Lancaster [Brussels, 1882], Vol. II, contains a bibliography of all papers on the theory of tides since the time of Newton.

List and Catalogue of the Publications issued by the Coast and Geodetic Survey, 1816 to 1902, published in 1902. See under head of Physical Hydrography.

#### EXPLANATION OF TABLES.

##### ON THE PREPARATION, ARRANGEMENT, AND USE OF THESE TIDE TABLES.

In attempting to extend the tide tables to all waters, the Survey has utilized information from a variety of foreign sources. The chief of these are: The Proceedings of the Royal Society of London, 1885, 1889, 1902; Reports on the operations of the Survey of India Department; the British, German, French, and other tide tables; observations and results furnished to the Survey through our foreign consulates; observations loaned on special requests, and voluntary contributions from several hydrographic surveys. See acknowledgments in Preface.

*Table 1, pages 46-326.*—This table gives full predictions, that is, tabulated high and low waters for each day of the year, for seventy stations. They have been made by means of the Ferrel tide-predicting machine described in Appendix 10 of the Superintendent's Report for 1883. The harmonic constants underlying these predictions are given in Table 4, where will also be found the lengths of the series of observations analyzed.

A note at the bottom of each page shows the kind of time used and the plane from which the heights are reckoned.

For convenience, the phases of the moon, together with the times of its extreme distances and declinations, are given in connection with the calendar of each station. More exact values will be found in Tables 7 and 8.

*Table 2, pages 327-331.*—The first three pages of this table afford a ready means of finding the approximate height of the tide at any intermediate time between high and low water for those ports on the Atlantic coast of the United States for which full predictions are given. This table may be extended to the subordinate stations (given in Table 3) referred to these principal stations by multiplying its values by the ratio of mean ranges, provided the duration of rise or fall is sensibly the same at the subordinate as at the principal station. Tables 2A and 2B have been so designated in order to avoid changing the number of the tables which follow. Table 2A is an auxiliary table by means of which Table 2B may be adapted to almost any kind of tide, whether semidiurnal or diurnal. It is believed that these tables will be found more satisfactory than any general tables which have ever been published heretofore for finding the height between the times of high and low water.

*Table 3, pages 332-445.*—This table gives the following items:

First. A list of about 3,000 tidal stations arranged in geographic order; the names of the seventy stations of Table 1 are printed in small capitals.

Second. Their approximate geographic position. If we put  $S$  and  $L$  for the west longitudes in time of the standard time and local meridians, respectively, the correction to change standard to local time is

$$S-L,$$

and the correction to change local to standard time is

$$L-S.$$

Third. The standard or principal port to which they are referred.

Fourth. The differences and ratios to be applied to the predicted times and heights of the principal port, Table 1, for obtaining the tides at any given subordinate port. The tides so obtained are already expressed in the kind of time given in connection with these differences.

The time differences are computed as follows:

Difference for time of HW =  $(HWI)_{..} - (HWI)_{.} \pm S_{.} \mp S_{..} + 1\frac{1}{2} (\pm L_{..} \mp L_{.}) + n$  (12<sup>h</sup> 25<sup>m</sup>).

Difference for time of LW =  $(LWI)_{..} - (LWI)_{.} \pm S_{.} \mp S_{..} + 1\frac{1}{2} (\pm L_{..} \mp L_{.}) + n$  (12<sup>h</sup> 25<sup>m</sup>).

Single subscripts refer to the principal station, and double subscripts to the subordinate station. The upper sign is used for west longitude and the lower one for east longitude.

$L$  = the longitude of the station in time.

$S$  = the longitude of the time meridian used.

$n=0$  when the corresponding tropic intervals at both stations are marked with the same letter.

$n=\pm 1$  when the corresponding tropic intervals at the two stations are marked with different letters, the sign giving the smaller result being usually preferred.

$n=\pm 2$  when the tide is chiefly diurnal, and it is desired to change the sign of the direct difference; also when the two stations are situated upon opposite sides of the day-line in the Pacific Ocean.

Sometimes when the corresponding height inequalities are small the markings of the tropic intervals at the two stations are ignored in computing the time difference. For stations where the tide is chiefly diurnal the tropic intervals are compared to get the time differences. If the Russian calendar is desired for Siberian or other stations, subtract thirteen days from the dates given by application of the differences.

If the subordinate station is properly referred, the times of high and low water ought to be correctly given by means of the tidal differences, and in the kind of time indicated in these columns, without regard to the time used for the standard port.

The height differences are computed as follows:

Difference for height of HW =  $[D_{..} + \frac{1}{2} (Mn)_{..}] - [D_{.} + \frac{1}{2} (Mn)_{.}]$

Difference for height of LW =  $[D_{..} - \frac{1}{2} (Mn)_{..}] - [D_{.} - \frac{1}{2} (Mn)_{.}]$

where  $D_{.}$  and  $D_{..}$  are the depressions below mean sea level of the planes of reference at the standard and subordinate ports, respectively, as given in Table 3.

The heights of the tides are referred to one of three planes of reference: Mean low water, mean lower low water, and mean low water springs, § 9.

The differences may be used without material error only when the ratio of ranges is not far from unity. The heights thus obtained are reckoned from the plane of reference indicated in the difference columns, no matter what plane has been used for the predictions at the standard port. The approximate depression of this plane below mean sea level is given on the opposite page, in the third column from the last.

In no case should the height differences be used, except for very rough results, where the ratio of ranges differs as much as 25 per cent from unity. A much better estimate of the heights at the subordinate station can always be obtained by using the formula

$$h_{\text{II}} = r h_{\text{I}} + D_{\text{II}} - r D_{\text{I}}$$

in which  $D_{\text{I}}$  and  $D_{\text{II}}$  are the same as before,  $h_{\text{I}}$  and  $h_{\text{II}}$  are the heights of the tide at the standard and the subordinate ports, respectively, and  $r$  is the ratio of ranges. When both stations are referred to mean low water or to mean low water springs,  $D_{\text{II}} - r D_{\text{I}}$  may be neglected, and the formula becomes  $h_{\text{II}} = r h_{\text{I}}$ .

Fifth. Lunitidal intervals, mean and tropic. See §§ 1, 8, 9, and 10. The tropic lunitidal intervals marked  $a$  are to be added to the time of the moon's upper transit for north declination, and to the lower transit for south declination of the moon; those intervals marked  $b$  are to be added to the time of the moon's upper transit for south declination, and to the lower transit for north declination of the moon. It is to be noted that the values given are for tropic higher high and lower low water, and not for the tropic lower high and higher low water. To obtain such an interval approximately, change the letters  $a$  and  $b$  and find an interval as much greater than the mean interval as the given tropic interval is less. (See page 22.)

Sixth. Ranges of tide: Mean, spring, neap, and great tropic. See §§ 8, 9, and 10. In some localities the tide is chiefly diurnal—that is, usually only one high and one low water occur in twenty-four hours; for such places the columns for mean intervals and ranges are either left vacant, or else the given values have been inclosed in brackets. The bracketed values are for the semidiurnal part of the tide, and generally occur in nature only for a day or two while the moon is near the equator.

Seventh. Tropic diurnal inequalities in height. See § 8.

Eighth. Tropic range and interval of the diurnal portion of the tide. The interval is reckoned from an upper north or a lower south transit. It is hoped that the interval column, now largely vacant, may eventually be filled out, thus enabling one to trace the progress of the diurnal wave over the earth's surface.

Ninth. The position of the plane of predictions and of the tropic lower low water with respect to mean sea level. The former is of use in comparisons between observations and the predictions which are obtained by applying the differences for heights, as the local mean sea level can be approximately determined from a few readings of the tide staff. The latter, in connection with the data given in the other columns, enables one to construct a type curve for the locality similar to that given in paragraph 8.

Tenth. The variation of the compass for the year 1906.

Items here numbered five to nine (i. e., the right-hand page of Table 3) are intended for such nonharmonic quantities as best describe the tide, showing its character, magnitude, relation to the moon's transits and to mean sea level. See Fig. 2, § 8. The tidal differences and ratios are dependent upon these quantities.

This table is at present very imperfect, owing to a want of properly distributed observations upon which to base conclusions and to a want of time in which to utilize the observations already at hand. Improved values will be substituted from year to year wherever the present ones may prove to be erroneous, and all persons are urged to send information for correcting these Tide Tables to the Superintendent, Coast and Geodetic Survey, Washington, D. C., U. S. A.

*Table 4, pages 446-449.*—This table gives the amplitudes and epochs of the harmonic constants used in making the predictions for the principal tidal stations, together with the lengths of the series of observations used in their determination and the sources from which they were obtained.

*Table 5, pages 450-451.*—This table gives the variations in mean sea level due to the annual and semiannual components for such of the ports for which full predictions are given as our information permits. This table gives the value of

$$Sa \cos (h - Sa^\circ) + Ssa \cos (2h - Ssa^\circ)$$

or the height of the mean sea level at any time above the mean sea level for the year;  $h$  is the mean longitude of the sun  $= (\frac{1}{2})^\circ \times \text{day of year} - 80^\circ$ ;  $Sa, Sa^\circ$  are the amplitude and epoch of the annual component, and  $Ssa, Ssa^\circ$  the same for the semiannual component, the values of which are given in Table 4.

The heights in these Tide Tables have been reckoned from some mean plane which is regarded as fixed throughout the year, but the changes in surface level due to season of the year arising from meteorological causes are given in Table 5 for the first and sixteenth of each month. For instance, at St. Johns, Newfoundland, from November to February the sea is above its mean level, and from April to September it is below its mean for the whole year.

*Table 6, pages 452-453,* gives the Greenwich mean civil time of the transit of the moon across the meridian of Greenwich, together with the equation of time for Greenwich apparent noon.

To adapt this table to the local time of another meridian, *add* 2.1 minutes (or more accurately, the tabular hourly difference) for each hour or  $15^\circ$  of *west* longitude, and *subtract* the same for *east* longitude. To convert this result into standard time, add  $L - S$ , or to express the result directly in standard time, add

$$1.035 L - S$$

where  $L$  and  $S$  are the west longitudes in time of the local meridian and of the time meridian, respectively.

*Tables 7 and 8, page 454,* give the Greenwich mean civil times of the moon's phases, extreme distances, and declinations. To adapt these tables to any other meridian than that of Greenwich, *subtract* the longitude in time when it is *west* and *add* it when *east*. To express the result in standard time,  $S$ , subtract  $S$  hours from the tabular values.

*Table 9, pages 455-488.*—This table gives the direction and velocity of the current at certain stations on the Atlantic coast of the United States for three hours before and three hours after high and low water. Current diagrams have been prepared in the Tidal Division of this Office, showing the currents on Georges Bank, in Boston Harbor, Nantucket and Vineyard Sounds, New York Harbor, Delaware Bay, and Chesapeake Bay. They have been constructed upon a plan devised jointly by Lieut. E. H. Tillman, U. S. N., Assistant, Coast and Geodetic Survey, and Mr. John Ross, Nautical Expert, of the same Survey. The predicted times of every slack water in the year 1906 are given for Seymour Narrows, B. C., and Sergius Narrows, Alaska. Some brief notes are also added in regard to the times of slack current at a few other places on the Pacific coast. See examples 7-12, pages 35-37.

*Table 10, pages 489-509.*—This table gives the mean local civil time of the rising and setting of the sun's *upper limb* for every fifth day of the year, and practically for each degree of latitude from the equator to either pole. The observer's eye is supposed to be 15 feet above the sea level or above the plane of land. The table was computed by applying the equation of time to the hour angle given by the formula

$$\cos t = \frac{\cos \zeta - \sin \varphi \sin \delta}{\cos \varphi \cos \delta} = \cos \zeta \sec \varphi \sec \delta - \tan \varphi \tan \delta,$$

in which

$t$  = the hour angle of the sun;  
 $\varphi$  = the latitude of the station (+ if north, - if south);  
 $\delta$  = the sun's declination (+ if north, - if south);  
 $\zeta$  = the sun's zenith distance =  $90^\circ 56' 09'' = 90^\circ + r + s - \pi + d$ ,

where

$r$  = the refraction in the horizon =  $36' 29''$   
 $s$  = the sun's semidiameter =  $16' 01''$   
 $\pi$  = the sun's horizontal parallax =  $0' 09''$   
 $d$  = the dip of the horizon for a height of 15 feet =  $3' 48''$

The particular values of the declination used were obtained in the following way: A mean of the sun's declination at Greenwich apparent noon for the same dates between March 1, 1901, and March 1, 1905, was taken for every fifth day; also a mean value for the variation in declination for one hour was found in the same way. From these quantities a mean value of the declination for six hours before and six hours after Greenwich apparent noon was found for each date. The former were used as the values of the declination for computing the times of sunrise, and the latter for computing the times of sunset. A mean value for the equation of time was found similarly for the same dates and applied to the values obtained by the formula.

The times of sunrise and sunset are exact for the given declinations. If accuracy is desired, enter the table with the declination as an argument, interpolating when necessary. A table of this kind, using dates as an argument, will not apply equally well to all years, but the "Approximate date" of these tables will rarely be a whole day too early or too late. Hence, it will usually suffice to enter the table with the date as an argument, thus avoiding the necessity of ascertaining the sun's declination. The error resulting from using the approximate date as the true one varies with the season of the year, for near the solstices it will be practically nothing for all ordinary latitudes, and near the equinoxes it may in extreme cases be as much as two minutes in latitude  $50^\circ$ .

The critical declinations for failure to rise or set were obtained by the following formulas:

$$\begin{aligned} \text{Failure to rise when } \delta &= \mp 90^\circ 56' 09'' + \varphi \\ \text{Failure to set when } \delta &= \pm 89^\circ 03' 51'' - \varphi \end{aligned}$$

the upper sign being used for north latitudes and the lower for south.

Whenever the sunlight exceeds twenty-four hours the limiting dates are given between which any portion of the sun, however small, remains visible, and the corresponding dates are also given whenever the sun remains entirely invisible for more than twenty-four hours. The dates were obtained by means of the mean values of the declination and are therefore only approximate.

The duration of sunlight may be found by adding  $12^h$  to the time of setting and subtracting the time of rising from the sum. The difference in the duration of sunlight for the forenoon and afternoon of the same day, which sometimes amounts to more than half an hour, is twice the equation of time, slightly modified by the sun's motion in declination between rising and setting.

The sun's zenith distance,  $\zeta = 90^\circ 56' 09''$ , was taken as constant, for the variation of refraction in the horizon is the only element which might produce a sensible change in the time of rising or setting, and it is impossible to estimate these variations in advance. Fortunately, however, there will rarely be any material error in the table from this source, for even under the most extreme changes in atmospheric temperature and pressure, refraction



in the horizon can not vary more than about 8' on either side of its mean value, which at the time of the local summer solstice, when its greatest possible effect is produced, would make only a few seconds' difference in time of rising or setting near the equator, the correction becoming a whole minute in latitude  $48^\circ$ , two minutes in latitude  $61^\circ$ , and in higher latitudes the effect rapidly increases as the pole is approached. Hence, as the usual variations in refraction are much less than the above, it is believed that the table will generally be found correct to the nearest minute for all usual latitudes, but may occasionally be out from three to five minutes or more in very high latitudes.

*Table 11, pages 510-511.*—This table gives the mean local civil time of the beginning of morning astronomical twilight and of the end of evening astronomical twilight for various latitudes and declinations. Astronomical twilight is assumed to begin or end when the sun's center is  $18^\circ$  below the rational horizon, at which time total darkness, so far as the sun is concerned, ends or begins. This value of  $18^\circ$  for the sun's center below the horizon, which is generally accepted as the limit of astronomical twilight, was determined from observations made in rather high latitudes, and is probably somewhat too large for low latitudes, where twilight may begin later in the morning and end sooner in the evening than given by this table. The table is similar in arrangement to Table 10, but less extended, and was computed in the same manner, taking  $\zeta$  as  $108^\circ$ . It is exact for the given declinations, but applies only approximately to the dates given. In so indefinite a matter as twilight interpolation by estimation will usually be sufficiently accurate, without the trouble of computing proportional parts.

The duration of twilight for any given day may be found by subtracting the time of beginning of morning twilight from the time of sunrise or by subtracting the time of sunset from the time of end of evening twilight. In latitudes where there is an interval of darkness each twenty-four hours, the longest twilight occurs in June north of the equator and in December south of the equator, about the time of the summer solstice. The shortest twilights occur when the sun is a little more than  $90^\circ$  from the elevated pole, those in the United States being in the first halves of March and October.

Civil twilight begins or ends when the sun's center is  $6^\circ$  below the rational horizon. At this time the brightest stars are visible. The duration of civil twilight is usually about one-third of the duration of astronomical twilight, but is less than one-third when the astronomical twilight is very long.

*Table 12, page 512.*—This table gives the reduction of local mean time to standard meridian time. Whenever standard time is used, the values given in Tables 10 and 11 must be corrected by the difference of longitude in time between the station and its standard meridian by means of Table 12.

#### EXAMPLES OF THE USE OF TABLES.

##### TABLES 1, 3, AND 6, EXAMPLES 1 TO 6.

*Example 1.*—Find the times and heights of high and low waters at Pulpit Harbor, Me., August 21, 1906.

For the State of Maine the index refers to page 340, indicating the beginning of the portion of Table 3 in which Pulpit Harbor is found in its geographic sequence. The standard port for reference is there seen to be Boston, page 63.

	Standard time.	Height.
	<i>h. m.</i>	<i>Fect.</i>
Page 65. First LW at Boston, August 21, 1906.....	6 03	— 0.9
Page 342. LW differences for Pulpit Harbor .....	— 0 36	0.0
First LW at Pulpit Harbor, August 21, 1906.....	5 27	— 0.9
Page 65. First HW at Boston, August 21, 1906.....	12 08	9.8
Page 342. HW differences for Pulpit Harbor.....	— 0 33	+ 0.3
First HW at Pulpit Harbor, August 21, 1906.....	11 35	10.1
Page 65. Second LW at Boston, August 21, 1906.....	18 18	— 0.4
Page 342. LW differences for Pulpit Harbor .....	— 0 36	0.0
Second LW at Pulpit Harbor, August 21, 1906.....	17 42	— 0.4
Page 65. First HW at Boston, August 22, 1906.....	0 28	10.5
Page 342. HW differences for Pulpit Harbor.....	— 0 33	+ 0.3
Second HW at Pulpit Harbor, August 21, 1906.....	23 55	10.8

0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 23<sup>h</sup> 55<sup>m</sup> is 11<sup>h</sup> 55<sup>m</sup> p. m.

If, for any reason, local time is desired, it may be obtained from the column of Table 3 headed "Longitude in time" by subtracting this longitude for the station from the standard time meridian and applying this difference, according to sign, to the predictions given by these tables. For instance, the standard time meridian at Pulpit Harbor is 5<sup>h</sup>, and the local longitude is 4<sup>h</sup> 36<sup>m</sup>; hence 5<sup>h</sup> — 4<sup>h</sup> 36<sup>m</sup> = + 24<sup>m</sup> is the correction to change standard to local time at Pulpit Harbor. But it must be borne in mind that local time is rarely used in the United States.

*Example 2—Rough predictions without the use of Table 1.*—Find the approximate times and heights of high and low waters at Pulpit Harbor, Me., for the date given in Example 1, without making use of Table 1.

At this station the diurnal and phase inequalities being comparatively small, the approximate times of the tides may be obtained by adding the lunital intervals, Table 3, line 24, page 343, to the moon's local transits, but for convenience Greenwich transits, Table 6, will be used directly, and the lunital intervals adapted to them by adding, once for all,

$$1.035L-S.$$

(See "Explanation of tables," page 28.) For Pulpit Harbor this is

$$\begin{aligned} (1.035 \times 4^h.6) - 5^h &= -0^h.24 = -14^m. \\ \therefore \text{Adapted HWI} &= 11^h 02^m - 14^m = 10^h 48^m, \\ \text{Adapted LWI} &= 4^h 49^m - 14^m = 4^h 35^m. \end{aligned}$$

	<i>h. m.</i>	<i>h. m.</i>
Page 453. Moon's transits, August 21, 1906.....	(0 53)	13 18
Adapted HWI .....	10 48	10 48
Standard times of HW's, August 21, 1906 .....	11 41	24 06
Page 453. Moon's transits, August 21, 1906.....	(0 53)	13 18
Adapted LWI.....	4 35	4 35
Standard times of LW's, August 21, 1906 .....	5 28	17 53

From Table 3 (pp. 342-343, line 24) we find  $Mn=9.9$  feet, and that the plane of reference is mean low water. The time and height of tides, August 21, thus roughly predicted, would be

5 :28	11 :41	17 :53	24 :06
0.0	9.9	0.0	9.9

The above example is given for the purpose of illustrating the use of a table of the moon's transits as a ready means for making approximate predictions for any year. For the year of the tide tables the method is not recommended, the preceding or following being easier of application and generally more exact.

*Example 3.*—Find the times and heights of high and low waters at Juneau, Alaska, January 23, 1906.

For the territory of Alaska the index refers to page 392, indicating the beginning of the portion of Table 3 in which Juneau is found in geographic sequence. The standard port for reference is there seen to be Sitka, page 159. In this example, the formula on page 27 is used in obtaining the heights because the ratio of ranges differs more than 25 per cent from unity.

	Standard time.	Height.
	<i>h. m.</i>	<i>Feet.</i>
Page 159. Second HW at Sitka, January 22, 1906.....	23 57	10.2
Page 394. HW difference for Juneau .....	+ 0 36	ratio 1.88
Product, $r h_s =$ .....		19.2
Page 394. $D_H - r D_s = 9.4 - 1.88 \times 7.4 =$ .....		- 4.5
First HW at Juneau, January 23, 1906.....	0 33	14.7
Page 159. First LW at Sitka, January 23, 1906 .....	5 19	5.8
Page 394. LW difference for Juneau.....	+ 0 35	ratio 1.88
Product, $r h_s =$ .....		10.9
Page 394. $D_H - r D_s = 9.4 - 1.88 \times 7.4 =$ .....		- 4.5
First LW at Juneau, January 23, 1906 .....	5 54	6.4
Page 159. First HW at Sitka, January 23, 1906.....	11 12	12.7
Page 394. HW difference for Juneau.....	+ 0 36	ratio 1.88
Product, $r h_s =$ .....		23.9
Page 394. $D_H - r D_s = 9.4 - 1.88 \times 7.4 =$ .....		- 4.5
Second HW at Juneau, January 23, 1906.....	11 48	19.4
Page 159. Second LW at Sitka, January 23, 1906.....	18 05	0.7
Page 394. LW difference for Juneau .....	+ 0 35	ratio 1.88
Product, $r h_s =$ .....		1.3
Page 394. $D_H - r D_s = 9.4 - 1.88 \times 7.4 =$ .....		- 4.5
Second LW at Juneau, January 23, 1906 .....	18 40	- 3.2

*Example 4.*—A more accurate method for determining the height of the tide at any secondary station where the tide never becomes diurnal.—Find the heights of high and low waters at Juneau, Alaska, for the date given in Example 3.

It often happens that the ratio of ranges of the diurnal wave for the principal and subordinate stations is not equal to the ratio of their mean ranges. This implies that the types of the tides at the two places are not exactly similar. The following method, which is somewhat more elaborate than the one just exemplified, should be used if more carefully predicted heights are required:

(a) Find the times of the required tides as in the above example, and then copy the heights from the predictions for the standard port, beginning and ending so as to include at each end one high and one low water before and after the required heights; for distinction these extra heights may be inclosed in brackets.

(b) From Table 3 take out the following quantities, the notation used here being temporary:

$r$  = the ratio of ranges.

$r' = \frac{\text{tropic range diurnal wave secondary station.}}{\text{tropic range diurnal wave primary station.}}$

$D_i$  = depression below mean sea level of reference plane at the standard port.

$D_{ii}$  = depression below mean sea level of reference plane at the subordinate port.

(c) The high and low water inequalities (HWQ), (LWQ), given in Table 3, are for the *tropic tides*, and will not apply to other tides. To find the high-water inequality ( $HW\text{ineq.}$ ) for any high water at the principal station, take the mean difference between its height and that of the preceding and following high waters of (a); and then multiply it by  $\frac{1}{2}(r-r')$  of (b). The low-water inequality ( $LW\text{ineq.}$ ) is found in a similar manner, and multiplied by the same factor. The inequality obtained by comparing a higher high water with the lower high waters on either side of it may be marked ( $HW\text{ineq.}$ )<sub>a</sub>, and the inequality of which the lower high water is the middle height may be marked ( $HW\text{ineq.}$ )<sub>b</sub>. Similarly the low-water inequalities are designated ( $LW\text{ineq.}$ )<sub>a</sub>, and ( $LW\text{ineq.}$ )<sub>b</sub>, for the lower low waters and higher low waters, respectively.

(d) The required heights are then given by the following equations, where single subscripts refer to heights at the standard and double subscripts to heights at the subordinate or required station:

$$(HHW)_{ii} = r \times (HHW)_i + (D_{ii} - r \times D_i) - (HW\text{ineq.})_a \times \frac{1}{2}(r-r')$$

$$(LHW)_{ii} = r \times (LHW)_i + (D_{ii} - r \times D_i) + (HW\text{ineq.})_b \times \frac{1}{2}(r-r')$$

$$(HLW)_{ii} = r \times (HLW)_i + (D_{ii} - r \times D_i) - (LW\text{ineq.})_b \times \frac{1}{2}(r-r')$$

$$(LLW)_{ii} = r \times (LLW)_i + (D_{ii} - r \times D_i) + (LW\text{ineq.})_a \times \frac{1}{2}(r-r')$$

Applying the above to the given example for Juneau, the computation is as follows:

(a.) The heights from page 159, for Sitka, are:

Jan. 22, 1906,	—	[12.3	1.2]	10.2
Jan. 23, 1906,	5.8	12.7	0.7	—
Jan. 24, 1906,	[10.7	5.4]	—	—

(b.) The ratio of ranges is given on page 394, line 30, as  $r=1.88$ ; to find  $r'$ , observe on page 395, line 30, that the tropic range diurnal wave for Juneau is 6.8, and line 47, page 395, for Sitka, the corresponding value is 4.9, hence  $r' = \frac{6.8}{4.9} = 1.39$ ; on the same lines we find  $D_i=7.4$ , and  $D_{ii}=9.4$ . The term  $(D_{ii}-r \times D_i)$ , in the above equations, is a constant for any given station and is here equal to  $9.4-1.88 \times 7.4 = -4.5$ . Of the unbracketed heights, 10.2 is the LHW, 5.8 the HLW, 12.7 the HHW, and 0.7 the LLW. Taking the mean of the differences between each of these and the preceding and following tide of same phase, we obtain the inequalities as shown below.

(c.) The high-water inequalities are:

$$12.3-10.2=2.1 \text{ for LHW}$$

$$12.7-10.2=2.5 \text{ for LHW}$$

$$\text{Mean} = \underline{2.3} \text{ for LHW}$$

$$\text{Factor} = .245 = \frac{1}{2}(r-r')$$

$$\text{Product} = \underline{0.6} = (HW\text{ineq.})_b \times \frac{1}{2}(r-r')$$

$$12.7-10.2=2.5 \text{ for HHW}$$

$$12.7-10.7=2.0 \text{ for HHW}$$

$$\text{Mean} = \underline{2.25} \text{ for HHW}$$

$$\text{Factor} = .245 = \frac{1}{2}(r-r')$$

$$\text{Product} = \underline{0.6} = (HW\text{ineq.})_a \times \frac{1}{2}(r-r')$$

The low-water inequalities are:

$$5.8-1.2=4.6 \text{ for HLW}$$

$$5.8-0.7=5.1 \text{ for HLW}$$

$$\text{Mean} = \underline{4.85} \text{ for HLW}$$

$$\text{Factor} = .245 = \frac{1}{2}(r-r')$$

$$\text{Product} = \underline{1.2} = (LW\text{ineq.})_b \times \frac{1}{2}(r-r')$$

$$5.8-0.7=5.1 \text{ for LLW}$$

$$5.4-0.7=4.7 \text{ for LLW}$$

$$\text{Mean} = \underline{4.9} \text{ for LLW}$$

$$\text{Factor} = .245 = \frac{1}{2}(r-r')$$

$$\text{Product} = \underline{1.2} = (LW\text{ineq.})_a \times \frac{1}{2}(r-r')$$

(d.) The required heights at Juneau are therefore:

$$(\text{LHW})_{..} = 1.88 \times 10.2 - 4.5 + 0.6 = 15.3 \text{ feet.}$$

$$(\text{HLW})_{..} = 1.88 \times 5.8 - 4.5 - 1.2 = 5.2 \text{ feet.}$$

$$(\text{HHW})_{..} = 1.88 \times 12.7 - 4.5 - 0.6 = 18.8 \text{ feet.}$$

$$(\text{LLW})_{..} = 1.88 \times 0.7 - 4.5 + 1.2 = -2.0 \text{ feet.}$$

The heights by this process are reckoned from the plane given at the head of the columns of differences for heights in Table 3, which in this case is the mean of the lower low waters. In Table 5 are given the variations of mean sea level at many of the principal ports, from which one may roughly estimate the correction due to season of the year at the subordinate port. For the above example this correction happens to be about +0.2 feet, and it affects all heights alike.

*Example 5—Rough predictions without the use of Table 1.*—Find the approximate times and heights of high and low waters at Juneau, Alaska, for the date given in Example 3.

At this station the diurnal inequality is large, especially when the moon is far from the equator, as it is upon January 23, 1906. For such dates the times of tide become approximately known by adding the tropic intervals, properly adapted, as in Example 2, to the Greenwich transits, Table 6.

	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>
Adapted tropic HHWI=0	19	+0	17	=0	36 <i>b</i>	
Adapted tropic LLWI=7	06	+0	17	=7	23 <i>b</i>	
Adapted HWI=0	45	+0	17	=1	02	
Adapted LWI=6	56	+0	17	=7	13	
Adapted tropic LHWI=2×1	02	—0	36	=1	28 <i>a</i>	
Adapted tropic HLWI=2×7	13	—7	23	=7	03 <i>a</i>	

	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>
Page 452. Moon's transits, January 22, 23, 1906 .....	(22	34)	11	02
Adapted tropic HWI's .....	1	28 <i>a</i>	0	36 <i>b</i>
Standard time of HW's, January 23, 1906 .....	0	02	11	38
Page 452. Moon's transits, January 22, 23, 1906 .....	(22	34)	11	02
Adapted tropic LWI's .....	7	03 <i>a</i>	7	23 <i>b</i>
Standard time of LW's, January 23, 1906 .....	5	37	18	25

Table 3, page 395, line 30, gives 2.2 and 6.2 feet for the tropic diurnal inequality in HW and LW, respectively, and 14.5 feet for mean range. Consequently the higher high water should be about one-half the tropic diurnal inequality higher than mean HW, and the lower high water as much lower. So for the low waters. The heights of the four tides referred to mean low water are:

	<i>R.</i>	<i>R.</i>	<i>R.</i>
HHW	=14.5+1.1=	15.6	
LHW	=14.5-1.1=	13.4	
HLW	= 0+3.1=	3.1	
LLW	= 0-3.1=-	3.1	

The predictions obtained from Table 1 are referred to the mean of the lower low waters, which is, by § 9,

$$\frac{6.2}{3} + \frac{.04 (18.3-14.5)^2}{6.2} = 2.2$$

feet below mean low water. Arranging the tides in the order of occurrence and referring the heights just obtained to the plane of mean lower low water, we have

LHW	HLW	HHW	LLW
0:02	5:37	11:38	18:25
15.6	5.3	17.8	-0.9

*Example 6.*—Find the times and heights of high and low water at Shibayama, Japan, March 19, 1906.

For Japan the index refers to page 398, indicating the beginning of the portion of Table 3 in which Shibayama is found in its geographic sequence. The standard port for reference is there seen to be San Francisco Entrance, page 147.

	Standard time.	Height.
	<i>h. m.</i>	<i>Feet.</i>
Page 147. Second LW at San Francisco, March 19, 1906.....	13 36	0.3
Page 400. LW difference for Shibayama.....	— 9 53	ratio 0.13
First LW at Shibayama, March 19, 1906 .....	3 43	0.0
Page 147. Second HW at San Francisco, March 19, 1906.....	20 58	4.4
Page 400. HW difference for Shibayama .....	—10 17	ratio 0.13
First HW at Shibayama, March 19, 1906 .....	10 41	0.6
Page 147. First LW at San Francisco, March 20, 1906.....	1 33	3.2
Page 400. LW difference for Shibayama.....	— 9 53	ratio 0.13
Second LW at Shibayama, March 19, 1906 .....	15 40	0.4
Page 147. First HW at San Francisco, March 20, 1906.....	7 37	5.1
Page 400. HW difference for Shibayama .....	—10 17	ratio 0.13
Second HW at Shibayama, March 19, 1906 .....	21 20	0.7

These predictions for Shibayama are in Cosmopolitan or Standard time of the one hundred and thirty-fifth meridian east, and the date requires no alteration, because the one station is east of the day line and the other is west. In predicting tides from the moon's transits (see examples 2, 5), *S* and *L* for Shibayama become negative—i. e., they are reckoned eastward; if taken otherwise, the change of date introduced by going westward from Greenwich to Shibayama would have to be allowed for.

The heights are reckoned from the plane of mean lower low water, because they are proportional to those at San Francisco.

It may be noted that wherever height differences are used the heights obtained are supposed to be referred to the plane of reference given in the columns of height differences, Table 3; but when ratios are used the plane of reference at the subordinate station has the same definition with respect to the tides as has the plane used at the principal station.

TABLE 9—CURRENT TABLES, EXAMPLES 7 TO 12.

*Example 7.*—Find the direction and velocity of the current at station (5), page 458, which is in mid-channel south from Clark Island, Portsmouth Harbor, at noon, July 2, 1906.

From the current table, page 458, we find that the currents in this vicinity are referred to the tides at Portland, the predictions for which begin on page 59.

Upon referring to these predictions it is seen that noon, July 2, 1906, is about one hour before Portland low water. The current table, for station (5), page 458, shows that at such a time the direction of the current is N. 84° E., and that its velocity is 2.3 knots.

*Example 8.*—Find the times, referred to the Boston tides, of slack water and of strength of current at station (1), page 459, which is in South Channel 1.2 miles N. 85° E. from Deer Island Light, Boston Harbor.

To find the times of slack with regard to high or low water, observe where the current table, for station (1), page 459, shows a sudden change of direction, which is between 0 h. and 1 h. after HW, and 0 h. and 1 h. after LW at Boston. In the first instance the

velocities are 0.1 and 0.8 knot, which are to each other as 1 to 8, so that if the 60 minutes between 0 h. and 1 h. are divided into  $1 + 8 = 9$  parts, one of these parts, or about 7 minutes, is the time elapsing to the middle of the slack. This slack occurs, therefore, at 0<sup>h</sup> 07<sup>m</sup> after HW, which shows that it is the slack before ebb. Near the second slack the velocities are as 1 to 9, so that if 60 minutes are divided into  $1 + 9 = 10$  parts, one of these, or 6 minutes, represents the time in excess of 0 hour after LW to the slack before flood, which occurs, therefore, at 0<sup>h</sup> 06<sup>m</sup> after LW.

To find the times of strength of flood or ebb with regard to high or low water is not quite so simple as the preceding; but for most purposes it will suffice to determine these times very approximately by a mere inspection of the tables to note where the greatest velocities occur. Thus, for this example, the strength of flood is readily seen to be about 3<sup>h</sup> 05<sup>m</sup> before HW and the strength of ebb about 2<sup>h</sup> 40<sup>m</sup> before LW. More exact determinations of these times can be made by plotting the velocities upon profile paper.

The above times of slack and strength, with regard to the times of high and low water at Boston, may be regarded as constants for this station, for the table does not enable us to take into account the small fluctuations which these values undergo during a lunation. In order to turn these relative times into actual times for any given date, proceed as in Example 10.

*Example 9.*—Find the times, referred to the New York tides, of slack water and of strength of current at The Narrows, New York Harbor, from the diagram on page 473.

To find the times of slack, with regard to high or low water, note on the diagram, page 473, where the curves called “slack before flood” and “slack before ebb” cross the horizontal line opposite “The Narrows.” For slack before flood this will be found to be about 2<sup>h</sup> 20<sup>m</sup> after LW, and for slack before ebb about 1<sup>h</sup> 20<sup>m</sup> after HW at New York.

The times of strength of flood and ebb are obtained from the diagram in a similar way, and are for strength of flood about 1<sup>h</sup> 25<sup>m</sup> before HW, and for strength of ebb about 2<sup>h</sup> 00<sup>m</sup> before LW at New York. The velocities are for flood, between 1.7 and 1.8 knots, and for ebb, between 2.2 and 2.3 knots, as shown by the small figures on the diagram.

The above times of slack and strength, with regard to the times of high and low water at New York, may be regarded as constants for this station, for the diagram does not enable us to take into account the small fluctuations which these values undergo during a lunation.

*Example 10.*—Find the Eastern Standard (seventy-fifth meridian) times of slack water and of strength of current at The Narrows, New York Harbor, for June 30, 1906.

	Standard time.			
	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>
Page 80. Times of HW at New York, June 30, 1906 .....	1	28	14	24
<i>Example 9.</i> Times of strength of flood at The Narrows before New York HW .....	1	25	1	25
Times of strength of flood at The Narrows, June 30, 1906 .....	0	03	12	59
Page 80. Times of HW at New York, June 30, 1906 .....	1	28	14	24
<i>Example 9.</i> Times of slack before ebb at The Narrows after New York HW .....	1	20	1	20
Times of slack before ebb at The Narrows, June 30, 1906 .....	2	48	15	44
Page 80. Times of LW at New York, June 30, 1906 .....	8	13	21	01
<i>Example 9.</i> Times of strength of ebb at The Narrows before New York LW .....	2	00	2	00
Times of strength of ebb at The Narrows, June 30, 1906 .....	6	13	19	01
Page 80. Times of LW at New York, June 30, 1906 .....	8	13	21	01
<i>Example 9.</i> Times of slack before flood at The Narrows after New York LW .....	2	20	2	20
Times of slack before flood at The Narrows, June 30, 1906 .....	10	32	23	21

*Example 11.*—Find the lunicurrent intervals for the times of slack water and of strength of current for Example 9.

The port of reference for the currents in The Narrows is New York (Governors Island), the constants for which are found by the index to begin on page 352, and on the opposite page, line 9, the lunitidal intervals are given as 8<sup>h</sup> 04<sup>m</sup> and 2<sup>h</sup> 05<sup>m</sup>, for high and low waters, respectively. Whenever the times of slack or strength are *before* high or low water, these times must be subtracted from the above lunitidal intervals in order to obtain the corresponding lunicurrent intervals; but whenever these times are *after* high or low water, add them to the lunitidal intervals.

Applying these rules to the times of slack and strength already found, and arranging the results in the order of their occurrence, we have:

	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>
Lunicurrent interval for strength of ebb, = 2	05	— 2	00	= 0	05	
Lunicurrent interval for slack before flood, = 2	05	+ 2	20	= 4	25	
Lunicurrent interval for strength of flood, = 8	04	— 1	25	= 6	39	
Lunicurrent interval for slack before ebb, = 8	04	+ 1	20	= 9	24	

Whenever the lunitidal interval is less than the time of slack or strength and the latter has to be taken from the former, add 12<sup>h</sup> 25<sup>m</sup> to the lunitidal interval before making the subtraction. When the sum of the lunitidal interval and the time of slack or strength exceeds 12<sup>h</sup> 25<sup>m</sup>, subtract that amount from the sum.

*Example 12.*—Find the lunicurrent intervals for one-quarter and for three-quarter ebb and flood, respectively, for the preceding example.

One-half of the sum of the lunicurrent intervals for slack before ebb and strength of ebb is called the lunicurrent interval for one-quarter ebb; and similarly, substituting flood for ebb, the interval for one-quarter flood is obtained. One-half of the sum of the lunicurrent intervals for strength of ebb and slack before flood gives the lunicurrent interval for three-quarter ebb, and exchanging the words ebb and flood gives the interval for three-quarter flood.

Whenever the two lunicurrent intervals between which the one-quarter or three-quarter points lie differ from one another more than 6 hours, find the half sum in the usual way, and if this half sum is less than 6<sup>h</sup> 13<sup>m</sup> increase it by that amount, but when the half sum exceeds 6<sup>h</sup> 13<sup>m</sup> diminish it by that amount. Do not add 6<sup>h</sup> 13<sup>m</sup> to or subtract it from any half sum unless the two lunicurrent intervals from which the sum was obtained differ by more than 6 hours. Applying these remarks to the example in hand, we have—

	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>	<i>h.</i>	<i>m.</i>
Lunicurrent interval for three-quarter ebb, = $\frac{1}{2}$ (0	05	+ 4	25)	=			2	15
Lunicurrent interval for one-quarter flood, = $\frac{1}{2}$ (4	25	+ 6	39)	=			5	32
Lunicurrent interval for three-quarter flood, = $\frac{1}{2}$ (6	39	+ 9	24)	=			8	02
Lunicurrent interval for one-quarter ebb, = $\frac{1}{2}$ (0	05	+ 9	24)	+ 6	13	= 10	57	

If it is desired to find the time at which the phase of current corresponding to any given lunicurrent interval occurs before or after the time of tide at the port of reference, take the difference between the given lunicurrent interval and either the high or the low water lunitidal interval at the port of reference, according to which gives the less difference.



## TABLES 10, 11, AND 12.—SUNRISE, SUNSET, AND TWILIGHT, EXAMPLES 13, 14, AND 15.

*Example 13.*—Find the local mean time and standard time of sunrise at San Francisco, Cal., on April 3, 1906.

For San Francisco the latitude  $= 37^{\circ} 49' \text{ N.}$   
 For San Francisco the longitude  $= 122^{\circ} 29' \text{ W.}$   
 For San Francisco Standard time meridian  $= 120^{\circ} 00' \text{ W.}$   
 The sun's declination on April 3, 1906, at 6 a. m.  $= 5^{\circ} 06' \text{ N.}$

<i>Approximate method.</i>		<i>Exact method.</i>	
	<i>h. m.</i>		<i>h. m.</i>
April 1, for lat. $38^{\circ} \text{ N.}$ , Table 10 .....	5 45	Decl. $4^{\circ} 15' \text{ N.}$ , for lat. $38^{\circ} \text{ N.}$ , Table 10 .....	5 45
Correction for 2 days.....	-03	Correction for $51'$ declination .....	-04
Correction for $11'$ latitude .....	00	Correction for $11'$ latitude.....	00
Local mean time sunrise.....	5 42	Local mean time sunrise.....	5 41
Red. for long. $2^{\circ} 29' \text{ W.}$ , Table 12.....	+10	Red. for long. $2^{\circ} 29' \text{ W.}$ , Table 12.....	+10
Standard time sunrise .....	5 52	Standard time sunrise .....	5 51

*Example 14.*—Find the local mean time of sunset at Buenos Ayres on December 10, 1906.

For Buenos Ayres the latitude  $= 34^{\circ} 36' \text{ S.}$   
 For Buenos Ayres the longitude  $= 58^{\circ} 22' \text{ W.}$   
 Sun's declination on December 10, at 7 p. m.  $= 22^{\circ} 54' \text{ S.}$

<i>Approximate method.</i>		<i>Exact method.</i>	
	<i>h. m.</i>		<i>h. m.</i>
December 12, for lat. $35^{\circ} \text{ S.}$ , Table 10 .....	7 08	Decl. $23^{\circ} 04' \text{ S.}$ , for lat. $35^{\circ} \text{ S.}$ , Table 10 .....	7 08
Correction for 2 days.....	-02	Correction for $10'$ declination .....	-01
Correction for $24'$ latitude .....	-01	Correction for $24'$ latitude .....	-01
Local mean time sunset .....	7 05	Local mean time sunset.....	7 06

*Example 15.*—Find the local mean time of beginning of morning twilight, and duration of astronomical and civil twilight at San Francisco, Cal., on April 3, 1906, with the data of Example 13.

<i>Approximate method.</i>		<i>Exact method.</i>	
	<i>h. m.</i>		<i>h. m.</i>
April 1, for lat. $40^{\circ} \text{ N.}$ , Table 11 .....	4 13	Decl. $4^{\circ} 15' \text{ N.}$ , for lat. $40^{\circ} \text{ N.}$ , Table 11 .....	4 13
Correction for 2 days.....	-0 04	Correction for $51'$ declination .....	-0 04
Correction for $2^{\circ} 11'$ latitude.....	+0 04	Correction for $2^{\circ} 11'$ latitude.....	+0 04
Local mean time of beginning of twilight. ....	4 13	Local mean time of beginning of twilight. ....	4 13
		<i>h. m.</i>	
Local mean time of sunrise, Example 13.....		5 41	
Local mean time of beginning of twilight .....		4 13	
Duration of astronomical twilight.....		1 28	
Duration of civil twilight, one-third of above.....		0 29	
Subtracting 29 minutes from time of sunrise gives for the beginning of civil twilight.....		5 12	

## UNITED STATES LIFE-SAVING SERVICE.\*

## GENERAL INFORMATION.

Life-saving stations, lifeboat stations, and houses of refuge are located upon the Atlantic and Pacific seaboard of the United States, the Gulf of Mexico, and the Lake coasts.

All stations on the Atlantic coast from the eastern extremity of the State of Maine to Cape Fear, North Carolina, are manned annually by crews of experienced surfmen from the 1st of September to the 1st of May following. Upon the Pacific coast they are opened and manned the year round.

All life-saving and lifeboat stations are fully supplied with boats, wreck guns, beach apparatus, restoratives, etc.

Houses of refuge are supplied with boats, provisions, and restoratives, but not manned by crews; a keeper, however, resides in each throughout the year, who, after every storm, is required to make extended excursions along the coast, with a view of ascertaining if any shipwreck has occurred and finding and succoring any persons that may have been cast ashore.

Houses of refuge are located exclusively upon the Florida coast, where the requirements of relief are widely different from those of any other portion of the seaboard.

Most of the life-saving and lifeboat stations are provided with the International Code of Signals, and vessels can, by opening communication, be reported; or obtain the latitude and longitude of the station, where determined; or information as to the weather probabilities in most cases; or, if crippled or disabled, a steam tug or revenue cutter will be telegraphed for, where facilities for telegraphing exist, to the nearest port, if requested.

All services are performed by the life-saving crews without other compensation than their wages from the Government.

Destitute seafarers are provided with food and lodgings at the nearest station by the Government as long as necessarily detained by the circumstances of shipwreck.

The station crews patrol the beach from 2 to 4 miles each side of their stations four times between sunset and sunrise, and if the weather is foggy the patrol is continued through the day.

Each patrolman carries Coston signals. Upon discovering a vessel standing into danger he ignites one of them, which emits a brilliant red flame of about two minutes' duration, to warn her off, or, should the vessel be ashore, to let her crew know that they are discovered and assistance is at hand.

If the vessel is not discovered by the patrol immediately after striking, rockets or flare-up lights should be burned; or, if the weather be foggy, guns should be fired to attract attention, as the patrolman may be some distance away at the other end of his beat.

*Masters are particularly cautioned, if they should be driven ashore anywhere in the neighborhood of the stations, especially on any of the sandy coasts where there is not much danger of vessels breaking up immediately, to remain on board until assistance arrives, and under no circumstances should they attempt to land through the surf in their own boats until the last hope of assistance from the shore has vanished. Often when comparatively smooth at sea a dangerous surf is running which is not perceptible 400 yards offshore, and the surf when viewed from a vessel never appears as dangerous as it is. Many lives have unnecessarily been lost by the crews of stranded vessels being thus deceived and attempting to land in the ship's boats.*

The difficulties of rescue by operations from the shore are greatly increased in cases where the anchors are let go *after entering the breakers*, as is frequently done, and the chances of saving life correspondingly lessened.

## INSTRUCTIONS.

## RESCUE WITH THE LIFEBOAT OR SURFBOAT.

The patrolman, after discovering your vessel ashore and burning a Coston signal, hastens to his station for assistance. If the use of a boat is practicable, either the large lifeboat is launched from its ways in the station and proceeds to the wreck by water, or the lighter surfboat is hauled overland to a point opposite the wreck and launched, as circumstances may require.

Upon the boat reaching your vessel, the directions and orders of the keeper (who always commands and steers the boat) should be implicitly obeyed. Any headlong rushing and crowding should be prevented, and the captain of the vessel should remain on board, to preserve order, until every other person has left.

Women, children, helpless persons, and passengers should be passed into the boat first.

Goods or baggage will positively not be taken into the boat until all are landed. If any be passed in against the keeper's remonstrance, he is fully authorized to throw the same overboard.

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\* This account is reproduced from the publications of the United States Life-Saving Service.

## RESCUE WITH THE BREECHES BUOY OR LIFE CAR.

Should it be inexpedient to use either the lifeboat or surfboat, recourse will be had to the wreck gun and beach apparatus for the rescue by the breeches buoy or the life car.

A shot with a small line attached will be fired across your vessel.

Get hold of the line as soon as possible and haul on board until you get a tail block with a whip or endless line rove through it. This tail block should be hauled on board as quickly as possible to prevent the whip drifting off with the set or fouling with wreckage, etc. Therefore, if you have been driven into the rigging,

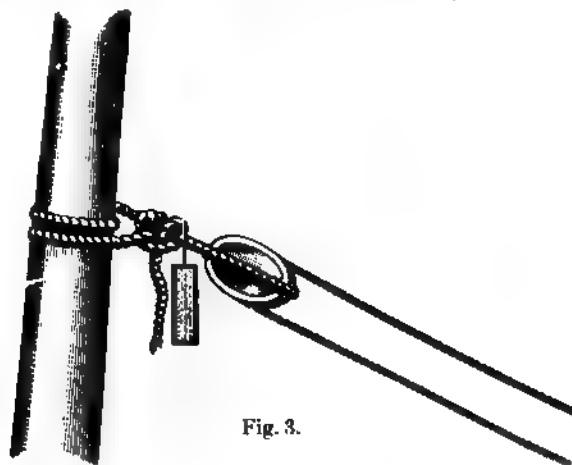


Fig. 3.

where but one or two men can work to advantage, cut the shot line and run it through some available block, such as the throat or peak halyards block, or any block which will afford a clear lead, or even between the ratlines, that as many as possible may assist in hauling.

Attached to the tail block will be a tally board, with the following directions in English on one side and French on the other:

"Make the tail of the block fast to the lower mast, well up. If the masts are gone, then to the best place you can find. Cast off shot line, see that the rope in the block runs free, and show signal to the shore."

The above instructions being complied with, the result will be as shown in fig. 3 above.

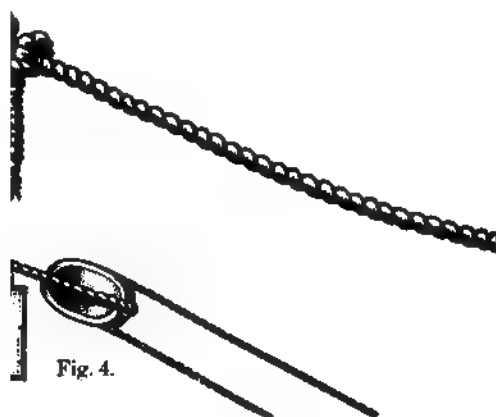


Fig. 4.

As soon as your signal is seen, a 3-inch hawser will be bent on to the whip and hauled off to your ship by the life-saving crew.

If circumstances will admit, you can assist the life-saving crew by manning that part of the whip to which the hawser is bent and hauling with them.

When the end of the hawser is got on board, a tally board will be found attached, bearing the following directions in English on one side and French on the other:

"Make this hawser fast about 2 feet above the tail block; see all clear and that the rope in the block runs free, and show signal to the shore."

These instructions being obeyed, the result will be as shown in fig. 4.

*Take particular care that there are no turns of the whip line around the hawser. To prevent this, take the end of the hawser UP BETWEEN the parts of the whip before making it fast.*

When the hawser is made fast, the whip cast off from the hawser, and your signal seen by the life-saving crew, they will haul the hawser taut and by means of the whip will haul off to your ship a breeches buoy suspended from a traveler block, or a life car from rings, running on the hawser.

Fig. 5, below, represents the apparatus rigged, with the breeches buoy hauled off to the ship.

If the breeches buoy be sent, let one man immediately get into it, thrusting his legs through the breeches. If the life car, remove the hatch, place as many persons into it as it will hold (four to six), and secure the hatch on the outside by the hatch bar and hook, signal as before, and the buoy or car will be hauled ashore. This will be repeated until all are landed. On the last trip of the life car the hatch must be secured by the inside hatch bar.

In many instances two men can be landed in the breeches buoy at the same time by each putting a leg through a leg of the breeches and holding on to the lifts of the buoy.

Children, when brought ashore by the buoy, should be in the arms of older persons or securely lashed to the buoy. Women and children should be landed first.

In signaling as directed in the foregoing instructions, if in the daytime, let one man separate himself from the rest and swing his hat, a handkerchief, or his hand; if at night, the showing of a light and concealing it once or twice, will be understood; and like signals will be made from the shore.

Circumstances may arise, owing to the strength of the current or set, or the danger of the wreck breaking up immediately, when it would be impossible to send off the hawser. In such a case a breeches buoy or life car will be hauled off instead by the whip, or sent off to you by the shot line, and you will be hauled ashore through the surf.

If your vessel is stranded during the night and discovered by the patrolman, which you will know by his burning a brilliant red light, keep a bright lookout for signs of the arrival of the life-saving crew abreast of your vessel.

From one to four hours may intervene between the burning of the light and their arrival, as the patrolman will have to return to his station, perhaps 3 or 4 miles distant, and the life-saving crew draw the apparatus or surfboat through the sand or over bad roads to where your vessel is stranded.

Lights on the beach will indicate their arrival, and the sound of cannon firing from the shore may be taken as evidence that a line has been fired across your vessel. Therefore, upon hearing the cannon, make strict search aloft, fore and aft, for the shot line, for it is almost certain to be there. Though the movements of the life-saving crew may not be perceptible to you, owing to the darkness, your ship will be a good mark for the men experienced in the use of the wreck gun, and the first shot seldom fails.

#### SIGNALS.

The following signals, approved by the International Marine Conference convened at Washington in October, 1889, have been adopted by the Life-Saving Service, and will be used and recognized by the officers and employees as occasion may require.

"Upon the discovery of a wreck by night, the life-saving force will burn a red pyrotechnic light or a red rocket to signify—'You are seen; assistance will be given as soon as possible.'

"A red flag waved on shore by day, or a red light, red rocket, or red Roman candle displayed by night, will signify—'Haul away.'

"A white flag waved on shore by day, or a white light slowly swung back and forth, or a white rocket, or white Roman candle fired at night, will signify—'Slack away.'

"Two flags, a white and a red, waved at the same time on shore by day, or two lights, a white and a red, slowly swung at the same time, or a blue pyrotechnic light burned by night, will signify—'Do not attempt to land in your own boats. It is impossible.'

"A man on shore beckoning by day, or two torches burning near together by night, will signify—'This is the best place to land.'

"Any of these signals may be answered from the vessel as follows: In the daytime, by waving a flag, a handkerchief, a hat, or even the hand; at night, by firing a rocket, a blue light, or a gun, or by showing a light over the ship's gunwale for a short time, and then concealing it."

#### RECAPITULATION.

Remain by the wreck until assistance arrives from the shore, unless your vessel shows signs of immediately breaking up.

If not discovered immediately by the patrol, burn rockets, flare-up or other lights; or, if the weather be foggy, fire guns.

Take particular care that there are no turns of the whip line around the hawser before making the hawser fast.

Send the women, children, helpless persons, and passengers ashore first.

Make yourself thoroughly familiar with these instructions, and remember that on your coolness and strict attention to them will greatly depend the chances of success in bringing you and your people safely to land.

#### INSTRUCTIONS FOR SAVING DROWNING PERSONS BY SWIMMING TO THEIR RELIEF.\*

1. When you approach a person drowning in the water, assure him, with a loud and firm voice, that he is safe.

2. Before jumping in to save him, divest yourself as far and as quickly as possible of all clothing; tear them off, if necessary; but if there is not time, loose at all events the foot of your drawers, if they are tied, as, if you do not do so, they fill with water and drag you.

3. On swimming to a person in the sea, if he be struggling, do not seize him then, but keep off for a few seconds till he gets quiet, for it is sheer madness to take hold of a man when he is struggling in the water, and if you do you run a great risk.

4. Then get close to him and take fast hold of the hair of his head, turn him as quickly as possible onto his back, give him a sudden pull, and this will cause him to float; then throw yourself on your back also and swim for the shore, both hands having hold of his hair, you on your back and he also on his, and, of course, his back to your stomach. In this way you will get sooner and safer ashore than by any other means, and you can easily thus swim with two or three persons; the writer has even, as an experiment, done it with four, and gone with them 40 or 50 yards in the sea. One great advantage of this method is that it enables you to keep your head up, and also to hold the person's head up you are trying to save. It is of primary importance that you take fast hold of the hair and throw both the person and yourself on your backs. After many experiments, it is usually found preferable to all other methods. You can in this manner float nearly as long as you please, or until a boat or other help can be obtained.

5. It is believed there is no such thing as a death *grasp*; at least it is very unusual to witness it. As soon as a drowning man begins to get feeble and to lose consciousness he gradually slackens his hold until he quits it altogether. No apprehension need, therefore, be felt on that head when attempting to rescue a drowning person.

6. After a person has sunk to the bottom, if the water be smooth, the exact position where the body lies may be known by the air bubbles, which will occasionally rise to the surface, allowance being of course made for the motion of the water, if in a tideway or stream, which will have carried the bubbles out of a perpendicular course in rising to the surface. A body may be often regained from the bottom, before too late for recovery, by diving for it in the direction indicated by these bubbles.

7. On rescuing a person by diving to the bottom, the hair of the head should be seized by one hand only, and the other used, in conjunction with the feet, in raising yourself and the drowning person to the surface.

8. If in the sea, it may sometimes be a great error to try to get to land. If there be a strong "outsetting" tide, and you are swimming either by yourself, or having hold of a person who can not swim, then get on your back and float till help comes. Many a man exhausts himself by stemming the billows for the shore on a back-going tide, and sinks in the effort, when, if he had floated, a boat or other aid might have been obtained.

9. These instructions apply alike to all circumstances, whether as regards the roughest sea or smooth water.

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\*From the Regulations of the United States Life-Saving Service, published originally by the Royal National Life-Boat Institution of Great Britain.

**DIRECTIONS FOR RESTORING THE APPARENTLY DROWNED.\***

**RULE I.** *Arouse the patient.*—Unless in danger of freezing, do not move the patient, but instantly expose the face to a current of fresh air, wipe dry the mouth and nostrils, rip the clothing so as to expose the chest and waist, and give two or three quick smarting slaps on the stomach and chest with the open hand. If, however, there is reason to believe that considerable time has elapsed since the patient became insensible, do not lose further time by practicing Rule I, but proceed immediately to Rule II. After loosening clothing, etc., if the patient does not revive, then proceed thus:

**FIG. 4.** Showing the first step taken by which the chest is emptied of air, and the ejection of any fluids swallowed is assisted.

**RULE II.** *To expel water, etc., from the stomach and chest* (see Fig. 6).—If the jaws are clinched, separate them, and keep the mouth open by placing between the teeth a cork or small bit of wood; turn the patient on the face, a large bundle of tightly rolled clothing being placed beneath the stomach, and press heavily over it for half a minute, or so long as fluids flow freely from the mouth.

**RULE III.** *To produce breathing* (see Fig. 7).—Clear the mouth and throat of mucus by introducing into the throat the corner of a handkerchief wrapped closely around the forefinger; turn the patient on the back,

**FIG. 7.** Showing the position and action of the operator in alternately producing artificial expiration and inspiration of air.

the roll of clothing being so placed beneath it as to raise the pit of the stomach above the level of any other part of the body. If there be another person present, let him, with a piece of dry cloth, hold the tip of the tongue out of one corner of the mouth (this prevents the tongue from falling back and choking the entrance to the windpipe), and with the other hand grasp both wrists and keep the arms forcibly stretched back above the head, thereby increasing the prominence of the ribs, which tends to enlarge the chest. The two last-named positions are not, however, absolutely essential to success. Kneel beside or astride the patient's hips, and

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\*From the Regulations of the United States Life-Saving Service.

with the balls\* of the thumbs resting on either side of the pit of the stomach, let the fingers fall into the grooves between the short ribs, so as to afford the best grasp of the waist. Now, using your knees as a pivot, throw all your weight forward on your hands, and at the same time squeeze the waist between them, as if you wished to force everything in the chest upward out of the mouth; deepen the pressure while you can count slowly one, two, three; then suddenly let go with a final push, which springs you back to your first kneeling position. Remain erect on your knees while you can count one, two, three; then repeat the same motions as before at a rate gradually increased from four or five to fifteen times in a minute, and continue thus this bellows movement with the same regularity that is observable in the natural motions of breathing which you are imitating. If natural breathing be not restored, after a trial of the bellows movement for the space of three or four minutes, then turn the patient a second time on the stomach, as directed in Rule II, rolling the body in the opposite direction from that in which it was first turned, for the purpose of freeing the air passages from any remaining water. Continue the artificial respiration from one to four hours, or until the patient breathes, according to Rule III; and for awhile, after the appearance of returning life, carefully aid the first short gasps until deepened into full breaths. Continue the drying and rubbing, which should have been unceasingly practiced from the beginning by the assistants, taking care not to interfere with the means employed to produce breathing. Thus the limbs of the patient should be rubbed, always in an upward direction toward the body, with firm-grasping pressure and energy, using the bare hands, dry flannels, or handkerchiefs, and continuing the friction under the blankets or over the dry clothing. The warmth of the body can also be promoted by the application of hot flannels to the stomach and armpits, bottles or bladders of hot water, heated bricks, etc., to the limbs and soles of the feet.

**RULE IV. AFTER TREATMENT.**—*Externally:* As soon as breathing is established let the patient be stripped of all wet clothing, wrapped in blankets only, put to bed comfortably warm, but with a free circulation of fresh air, and left to perfect rest. *Internally:* Give whisky or brandy and hot water in doses of a teaspoonful to a tablespoonful, according to the weight of the patient, or other stimulant at hand, every ten or fifteen minutes for the first hour, and as often thereafter as may seem expedient. *Later manifestations:* After reaction is fully established, there is great danger of congestion of the lungs, and if perfect rest is not maintained for at least forty-eight hours, it sometimes occurs that the patient is seized with great difficulty of breathing, and death is liable to follow unless immediate relief is afforded. In such cases apply a large mustard plaster over the breast. If the patient gasps for breath before the mustard takes effect, assist the breathing by carefully repeating the artificial respiration.

**NOTE.**—Dr. Labordette, the supervising surgeon of the Hospital of Lisieux, in France, appears to have established that the clinching of the jaws and the semicontraction of the fingers, which have hitherto been considered signs of death, are, in fact, evidences of remaining vitality. After numerous experiments with apparently drowned persons, and also with animals, he concludes that these are only signs accompanying the first stage of suffocation by drowning, the jaws and hands becoming relaxed when death ensues.† This being so, the mere clinching of the jaws and semicontraction of the hands must not be considered as reasons for the discontinuance of efforts to save life, but should serve as a stimulant to vigorous and prolonged efforts to quicken vitality. Persons engaged in the task of resuscitation are, therefore, earnestly desired to take hope and encouragement for the life of the sufferer from the signs above referred to, and to continue their endeavors accordingly. In a number of cases Dr. Labordette restored to life persons whose jaws were so firmly clinched that, to aid respiration, their teeth had to be forced apart with iron instruments.

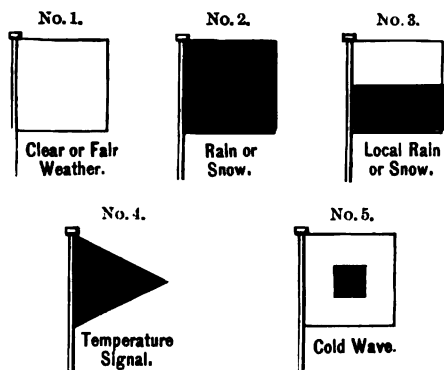
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\* It is wrong to suppose, as some do, that the inner end of the thumb is the ball. The ball is the fleshy base of the thumb, near the wrist.

† The muscular rigidity of death (rigor mortis) occurs later, after the temporary relaxation here referred to.

# STORM, WIND-DIRECTION, AND INFORMATION SIGNALS OF THE UNITED STATES WEATHER BUREAU.

## WEATHER AND TEMPERATURE SIGNALS, AND INTERPRETATION OF DISPLAYS.



No. 1, alone, indicates fair weather, stationary temperature.  
 No. 2, alone, indicates rain or snow, stationary temperature.  
 No. 3, alone, indicates local rain or snow, stationary temperature.

No. 1, with No. 4 above it, indicates fair weather, warmer  
 No. 1, with No. 4 below it, indicates fair weather, colder.

No. 2, with No. 4 above it, indicates rain or snow, warmer.  
 No. 2, with No. 4 below it, indicates rain or snow, colder.

No. 3, with No. 4 above it, indicates local rain or snow, warmer.

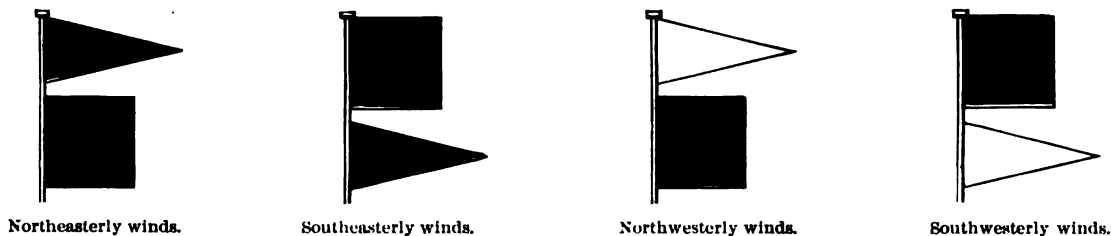
No. 3, with No. 4 below it, indicates local rain or snow, colder.

No. 1, with No. 5, indicates fair weather, cold wave.

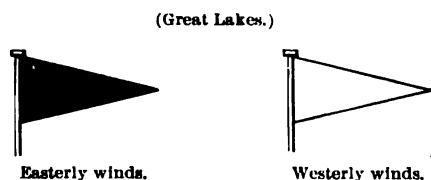
No. 2, with No. 5, indicates wet weather, cold wave.

## WIND SIGNALS FOR THE BENEFIT OF MARINE INTERESTS.

### STORM SIGNALS.



### INFORMATION SIGNALS.



### HURRICANE SIGNAL.



### EXPLANATION.

**STORM SIGNAL.**—A red flag with a black center indicates that a storm of marked violence is expected.

The pennants displayed with the flags indicate the direction of the wind: Red, easterly (from northeast to south); white, westerly (from southwest to north). The pennant above the flag indicates that the wind is expected to blow from the northerly quadrants; below, from southerly quadrants.

By night a red light indicates easterly winds, and a white light above a red light westerly winds.

**INFORMATION SIGNAL.**—Red or white pennant displayed alone. When displayed at stations on the Great Lakes, indicates that winds are expected which may prove dangerous to tows and smaller classes of vessels, the red pennant indicating easterly, and the white pennant westerly, winds.

When displayed at stations on the Atlantic, Pacific, and Gulf coasts, indicates that the local observer has received information from the Central Office of a storm covering a limited area, dangerous only for vessels about to sail to certain points, and serves as a notification to shipmasters that information will be given them upon application to the local observer. Only the red pennant is displayed on the coasts.

**HURRICANE SIGNAL.**—Two red flags with black centers, displayed one above the other, indicate the expected approach of tropical hurricanes, and also of those extremely severe and dangerous storms which occasionally move across the Lakes and north Atlantic coast.

No night information of hurricane signals is displayed.



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The time used is Intercolonial Standard, 60th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☉, new moon; ☾, 1st quar.; ☊, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

										JUNE.									

JULY.										SEPTEMBER.									
Moon.	Day of Mo.	Time and Height of Low Water.								Time and Height of High and Low Water.									
		Time	Height	Time	Height					Time	Height	Time	Height						
S	1	1:43	7:48	14:28	2:1	P	W	1	2:2	9:40	2:1	23:13	0.7	S	1	0:05	6:10	11:51	13:08
M	2	3:07	8:58	15:35	2:13	S	Th	2	5:25	10:54	17:18	23:13	0.7	○ S	2	0:45	6:52	12:37	18:49
Tu	3	4:28	10:06	16:35	2:17	F	3	0:09	6:20	11:51	18:11	23:13	0.7	M	3	1:20	7:28	13:18	19:30
P W	4	5:30	11:07	17:33	2:2	○ S	4	0:54	7:06	12:51	19:00	23:13	0.7	Tu	4	1:52	8:00	13:51	20:06
S Th	5	6:13	12:00	18:23	2:3	S	5	1:34	7:45	13:27	19:48	23:13	0.7	E W	5	2:24	8:29	14:26	20:40
○ F	6	6:58	12:45	19:10	2:4	M	6	2:15	8:23	14:09	20:25	23:13	0.7	Th	6	2:51	8:58	15:02	21:10
S	7	7:47	13:23	19:58	2:5	Tu	7	2:56	9:00	14:48	21:04	23:13	0.7	F	7	3:17	9:30	15:33	21:40
S	8	8:39	14:17	20:48	3:0	E W	8	3:38	9:32	15:27	21:40	23:13	0.7	S	8	3:40	10:00	16:07	22:10
M	9	9:30	15:01	21:24	3:1	Th	9	4:20	10:07	16:04	22:15	23:13	0.7	A S	9	4:02	10:36	16:43	22:35
Tu	10	10:21	15:45	22:09	3:2	F	10	5:02	10:44	16:43	22:51	23:13	0.7	○ M	10	4:26	11:16	17:28	23:07
W	11	11:12	16:33	22:50	3:3	○ S	11	5:45	11:27	17:27	23:27	23:13	0.7	Tu	11	4:58	12:07	18:27	23:51
E Th	12	12:03	17:25	23:35	3:4	S	12	6:28	12:10	18:21	24:00	23:13	0.7	N W	12	5:30	13:00	19:26	24:26
○ F	13	12:54	18:23	24:20	3:5	A M	13	7:10	12:54	19:11	24:45	23:13	0.7	Th	13	6:02	13:51	20:25	25:00
S	14	1:45	19:16	19:54	4:0	Tu	14	7:52	13:42	20:00	25:20	23:13	0.7	F	14	6:34	14:42	21:24	25:40
S	15	2:36	20:06	20:48	4:1	W	15	8:34	14:32	20:50	26:05	23:13	0.7	S	15	7:06	15:33	22:23	26:20
A M	16	3:27	20:56	21:33	4:2	N Th	16	9:16	15:22	21:40	26:40	23:13	0.7	S	16	7:38	16:24	23:02	26:55
Tu	17	4:18	21:46	22:18	4:3	F	17	9:58	16:12	22:30	27:15	23:13	0.7	M	17	8:10	17:15	23:41	27:30
W	18	5:09	22:36	23:04	4:4	S	18	10:40	17:02	23:20	27:50	23:13	0.7	● Tu	18	8:42	18:06	24:10	28:05
N Th	19	6:00	23:26	23:54	4:5	● S	19	11:22	17:52	24:10	28:25	23:13	0.7	E W	19	9:14	18:57	24:40	28:30
F	20	6:51	24:16	24:44	5:0	M	20	12:04	18:42	25:00	29:00	23:13	0.7	Th	20	9:46	19:48	25:10	28:55
● S	21	7:42	25:06	25:34	5:1	Tu	21	12:46	19:32	25:50	29:25	23:13	0.7	P F	21	10:18	20:39	25:40	29:10
S	22	8:33	25:56	26:09	5:2	W	22	13:28	20:22	26:40	30:00	23:13	0.7	S	22	10:50	21:30	26:10	29:25
M	23	9:24	26:46	26:44	5:3	E Th	23	14:10	21:12	27:30	30:25	23:13	0.7	S	23	11:22	22:21	26:40	29:40
Tu	24	10:15	27:36	27:19	5:4	F	24	14:52	22:02	28:20	31:00	23:13	0.7	M	24	11:54	23:12	27:10	29:55
W	25	11:06	28:26	28:09	5:5	S	25	15:34	22:52	29:10	31:25	23:13	0.7	Tu	25	12:26	24:03	27:40	30:10
E Th	26	11:57	29:16	28:59	6:0	D S	26	16:16	23:42	30:00	32:00	23:13	0.7	W	26	12:58	24:54	28:10	30:25
F	27	12:48	30:06	29:49	6:1	P M	27	16:58	24:32	30:50	32:25	23:13	0.7	Th	27	13:30	25:45	28:40	30:40
D S	28	1:39	30:56	30:39	6:2	Tu	28	17:40	25:22	31:40	33:00	23:13	0.7	F	28	14:02	26:36	29:10	30:55
S	29	2:30	31:46	31:29	6:3	S W	29	18:22	26:12	32:30	33:25	23:13	0.7	S	29	14:34	27:27	29:40	31:10
M	30	3:21	32:36	32:19	6:4	Th	30	19:04	27:02	33:20	34:00	23:13	0.7	S	30	15:06	28:18	30:10	31:25
Tu	31	4:12	33:26	33:09	6:5	F	31	19:46	27:52	34:10	34:25	23:13	0.7						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus ( - ) sign is before the height, in which case subtract it.

The time used is Intercolonial Standard, 60th meridian W., 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☉, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
E	M	1	0:23 0.4	6:30 2.9	12:28 0.4	18:38 8.3	O	Th	1	0:55 0.5	7:00 3.2	13:20 0.3	19:26 3.0	A	S	1	0:48 0.7	7:08 3.3	18:31 0.4	19:37 2.7
	Tu	2	0:57 0.3	7:02 3.1	13:05 0.3	19:15 3.3		F	2	1:17 0.5	7:30 3.3	13:46 0.2	19:55 2.9		S	2	1:10 0.7	7:32 3.3	14:00 0.3	20:05 2.7
	W	3	1:25 0.3	7:30 3.2	13:38 0.2	19:47 3.3		S	3	1:40 0.5	7:56 3.3	14:16 0.3	20:20 2.8		M	3	1:34 0.7	8:05 3.4	14:28 0.3	20:30 2.6
	Th	4	1:50 0.3	8:00 3.3	14:08 0.2	20:16 3.2		S	4	2:00 0.6	8:25 3.3	14:44 0.3	20:43 2.7		Tu	4	2:00 0.7	8:35 3.3	15:08 0.3	20:56 2.6
	F	5	2:14 0.3	8:27 3.3	14:37 0.2	20:43 3.0		M	5	2:24 0.6	8:54 3.2	15:15 0.4	21:08 2.6		W	5	2:30 0.7	9:09 3.2	15:35 0.3	21:30 2.6
A	S	6	2:34 0.4	8:54 3.2	15:05 0.4	21:08 2.9	N	Tu	6	2:48 0.7	9:25 3.1	15:50 0.5	21:40 2.5	C	Th	6	3:02 0.8	9:46 3.1	16:14 0.4	22:10 2.5
	S	7	2:55 0.5	9:24 3.1	15:36 0.5	21:34 2.7		W	7	3:15 0.8	10:04 2.9	16:30 0.6	22:20 2.4		F	7	3:45 0.9	10:28 2.9	17:00 0.6	23:00 2.4
	M	8	3:20 0.7	9:55 3.0	16:10 0.6	22:00 2.5		Th	8	3:50 1.0	10:45 2.7	17:20 0.8	23:10 2.2		S	8	4:37 1.0	11:18 2.7	17:50 0.8	23:50 2.2
	Tu	9	3:45 0.8	10:32 2.8	16:52 0.8	22:34 2.3		F	9	4:42 1.1	11:44 2.5	18:24 1.0	23:50 2.2		S	9	5:02 2.4	5:45 1.1	12:21 2.5	18:51 0.9
	W	10	4:15 1.0	11:18 2.6	17:47 1.0	23:20 2.1		S	10	5:05 2.1	6:00 1.3	13:02 2.4	19:50 1.1	E	M	10	1:20 2.4	7:14 1.1	13:40 2.4	20:02 1.0
C	Th	11	5:00 1.2	12:23 2.5	19:05 1.2	24:00 2.1	S	S	11	5:15 2.1	7:33 1.3	14:35 2.4	21:12 1.0		Tu	11	2:35 2.5	8:54 1.0	15:06 2.4	21:14 1.0
	F	12	0:48 1.9	6:05 1.4	13:55 2.4	21:00 1.2		M	12	5:34 2.4	9:35 1.1	15:54 2.6	22:15 0.8		W	12	3:42 2.7	10:10 0.7	16:21 2.6	22:20 0.8
	S	13	3:21 2.0	8:30 1.4	15:21 2.5	22:10 1.0		Tu	13	4:29 2.7	10:40 0.7	16:42 2.8	23:02 0.6		Th	13	4:40 3.1	11:11 0.5	17:24 2.7	23:13 0.6
	S	14	4:32 2.2	10:14 1.1	16:28 2.7	23:05 0.7		W	14	5:14 3.0	11:30 0.4	17:42 3.0	23:45 0.4		F	14	5:30 3.4	12:03 0.2	18:15 2.9	23:50 0.4
	M	15	5:15 2.6	11:10 0.7	17:30 3.0	23:45 0.5	P	Th	15	5:56 3.4	12:18 0.1	18:29 3.2	24:00 0.4	S	S	15	0:00 0.5	6:16 3.7	12:50 0.0	19:03 3.0
E	Tu	16	5:50 2.9	11:58 0.4	18:08 3.2	24:00 0.5		F	16	0:25 0.8	6:38 3.6	18:00 -0.2	19:12 3.2		S	16	0:42 0.4	7:02 3.8	18:35 -0.1	19:45 3.0
	W	17	0:20 0.3	6:27 3.2	12:38 0.1	18:48 3.4		S	17	1:00 0.2	7:18 3.8	18:45 -0.2	19:55 3.2		M	17	1:24 0.3	7:46 3.9	14:20 -0.2	20:30 3.0
	Th	18	0:55 0.1	7:02 3.5	13:15 -0.1	19:29 3.5		S	18	1:40 0.2	8:00 3.9	14:27 -0.2	20:37 3.1		Tu	18	2:06 0.3	8:32 3.8	15:05 -0.1	21:12 2.9
	F	19	1:29 0.0	7:38 3.7	13:57 -0.2	20:07 3.4		M	19	2:18 0.3	8:43 3.8	15:14 -0.1	21:18 3.0	W	W	19	2:50 0.4	9:17 3.7	15:48 0.0	21:57 2.8
P	S	20	2:08 0.1	8:18 3.7	14:39 -0.2	20:45 3.3	D	Tu	20	2:57 0.4	9:30 3.6	16:00 0.1	22:05 2.7		Th	20	3:35 0.6	10:05 3.4	16:34 0.2	22:42 2.7
	S	21	2:38 0.2	8:59 3.7	15:21 -0.1	21:27 3.1		W	21	3:38 0.6	10:18 3.3	16:52 0.4	22:57 2.5		F	21	4:24 0.7	10:54 3.1	17:22 0.5	23:35 2.6
	M	22	3:12 0.4	9:42 3.5	16:10 0.1	22:10 2.8		Th	22	4:30 0.9	11:14 3.0	17:50 0.7	23:50 2.5		S	22	5:24 0.9	11:50 2.8	18:15 0.7	24:30 2.5
	Tu	23	3:50 0.6	10:30 3.2	17:03 0.4	23:03 2.5		F	23	5:02 2.3	5:35 1.1	12:20 2.7	19:00 0.9	E	S	23	6:08 2.5	6:38 1.1	12:52 2.5	19:14 1.0
	W	24	4:36 0.9	11:30 2.9	18:11 0.8	24:00 2.5		S	24	1:25 2.2	7:16 1.2	13:40 2.5	20:20 1.0		M	24	1:45 2.4	8:06 1.2	14:10 2.3	20:22 1.1
D	Th	25	0:15 2.2	5:36 1.2	12:43 2.7	19:38 1.0	E	S	25	2:56 2.3	8:57 1.2	15:06 2.4	21:34 1.0		Tu	25	2:51 2.4	9:35 1.2	15:40 2.2	21:30 1.1
	F	26	2:02 2.1	7:35 1.3	14:14 2.6	21:12 1.0		M	26	3:56 2.5	10:17 1.0	16:20 2.5	22:30 0.9		W	26	3:55 2.6	10:49 1.0	16:48 2.2	22:25 1.1
	S	27	3:40 2.2	9:25 1.1	15:37 2.6	22:24 0.9		Tu	27	4:44 2.7	11:12 0.8	17:18 2.5	23:15 0.8		Th	27	4:45 2.7	11:40 0.9	17:42 2.2	23:15 1.0
	S	28	4:40 2.4	10:38 0.9	16:47 2.7	23:15 0.7		W	28	5:24 2.9	11:55 0.6	18:00 2.6	23:52 0.7	A	F	28	5:28 2.9	12:20 0.8	18:24 2.3	23:54 0.9
	M	29	5:25 2.7	11:30 0.7	17:40 2.9	23:56 0.6		Th	29	6:00 3.0	12:30 0.5	18:39 2.6	24:00 0.7		S	29	6:06 3.1	12:50 0.6	18:56 2.4	24:00 0.7
E	Tu	30	6:00 2.9	12:14 0.5	18:20 3.0	24:00 0.7	O	F	30	0:20 0.7	6:33 3.2	13:02 0.4	19:10 2.7		S	30	0:25 0.9	6:42 3.2	13:19 0.5	19:24 2.5
	W	31	0:27 0.5	6:32 3.1	12:48 0.3	18:56 3.0									M	31	0:54 0.8	7:16 3.3	13:48 0.4	19:54 2.6

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Intercolonial Standard, 60th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.								
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				
W.	Mo.					W.	Mo.					W.	Mo.					
	M 1	0:22	7:10	12:30	19:19		Th 1	1:07	7:59	13:25	20:02		Th 1	6:10	11:56	18:10	23:52	
		4.7	1.1	4.3	0.7			4.5	1.2	3.9	1.4			1.0	4.3	1.3	1.6	
E	Tu 2	1:10	8:07	13:24	20:12		F 2	1:53	8:52	14:21	20:55		F 2	0:16	6:58	12:39	18:52	
		4.6	1.2	4.1	0.9			4.3	1.2	3.7	1.6			4.5	1.1	4.1	1.6	
	W 3	2:02	9:03	14:22	21:06		S 3	2:45	9:46	15:25	21:48		S 3	0:59	7:51	13:31	19:43	
		4.4	1.2	3.8	1.1			4.2	1.1	3.6	1.6			4.4	1.2	3.9	1.7	
A	Th 4	2:55	9:55	15:25	21:58		S 4	3:42	10:37	16:33	22:45		S 4	1:50	8:48	14:31	20:51	
		4.3	1.1	3.7	1.3			4.2	1.0	3.7	1.5			4.2	1.2	3.8	1.7	
	F 5	3:45	10:42	16:20	22:46		M 5	4:40	11:25	17:33	23:42		N	M 5	2:49	9:46	15:41	21:58
		4.8	1.0	3.7	1.4			4.4	0.7	4.0	1.3			4.2	1.0	3.9	1.6	
	S 6	4:38	11:26	17:28	23:37	N	Tu 6	5:35	12:11	18:25	24:45		Tu 6	3:54	10:42	16:48	23:00	
		4.4	0.9	3.8	1.3			4.6	0.4	4.3	1.4			4.3	0.8	4.1	1.4	
	S 7	5:28	12:06	18:16	24:37		W 7	6:30	12:57	19:11	25:45		W 7	4:58	11:36	17:47	23:59	
		4.5	0.6	4.0	1.2			1.1	4.9	0.1	4.7			4.5	0.5	4.4	1.0	
	M 8	0:18	6:13	12:47	18:58		Th 8	1:13	7:15	13:40	19:53		Th 8	5:57	12:23	18:38	24:59	
		1.3	4.7	0.4	4.3			0.9	5.1	-0.1	5.0			4.8	0.2	4.9	1.0	
N	Tu 9	1:00	6:57	13:25	19:38		F 9	1:54	8:00	14:22	20:35		F 9	0:47	6:50	13:10	19:25	
		1.2	4.9	0.1	4.5			0.6	5.4	-0.3	5.3			0.6	5.2	-0.1	5.3	
O	W 10	1:37	7:40	14:04	20:18		S 10	2:37	8:45	15:03	21:18		O	S 10	1:32	7:40	13:55	20:09
		1.0	5.1	-0.1	4.8			0.4	5.5	-0.3	5.5			0.2	5.4	-0.3	5.6	
	Th 11	2:14	8:20	14:45	20:58		S 11	3:22	9:29	15:47	22:00		S 11	2:18	8:25	14:39	20:52	
		0.9	5.2	-0.1	5.0			0.3	5.5	-0.3	5.6			0.0	5.6	-0.4	5.8	
	F 12	2:54	9:02	15:26	21:39	E	M 12	4:08	10:13	16:32	22:43		E	M 12	3:03	9:11	15:23	21:36
		0.8	5.3	-0.1	5.2			0.2	5.4	-0.1	5.6			-0.2	5.7	-0.3	5.9	
	S 13	3:35	9:44	16:07	22:20	P	Tu 13	4:58	10:58	17:17	23:28		P	Tu 13	3:50	9:57	16:09	22:20
		0.7	5.2	-0.1	5.3			0.3	5.2	0.2	5.5			-0.2	5.6	-0.1	5.8	
	S 14	4:23	10:28	16:50	23:04		W 14	5:52	11:45	18:07	24:37		W 14	4:38	10:43	16:57	23:06	
		0.7	5.1	0.1	5.3			0.4	5.0	0.6	5.6			-0.1	5.4	0.2	5.6	
	M 15	5:13	11:12	17:39	23:50		Th 15	6:46	12:38	19:03	25:45		Th 15	5:32	11:32	17:50	23:53	
		0.8	4.9	0.3	5.2			5.2	0.6	4.7	0.9			0.1	5.1	0.6	5.2	
E	Tu 16	6:10	12:00	18:30	24:45		F 16	7:40	13:38	20:10	26:55		F 16	6:32	12:26	18:51	24:45	
		0.8	4.7	0.6	5.4			4.9	0.7	4.3	1.2			0.3	4.7	1.0	5.3	
C	W 17	0:40	7:10	12:55	19:24		S 17	2:06	9:08	14:50	21:23		C	S 17	0:46	7:37	13:27	20:03
		5.1	0.9	4.5	0.8			4.6	0.8	4.0	1.3			4.9	0.6	4.4	1.3	
	Th 18	1:34	8:14	13:55	20:26		S 18	3:12	10:10	16:12	22:37		S	S 18	1:46	8:48	14:40	21:23
		4.9	0.9	4.3	1.0			4.4	0.7	3.9	1.3			4.5	0.7	4.1	1.3	
	F 19	2:30	9:20	15:05	21:32	S	M 19	4:23	11:04	17:31	23:44		M	M 19	2:57	9:57	16:03	22:38
		4.8	0.9	4.1	1.1			4.4	0.6	4.0	1.2			4.8	0.7	3.9	1.3	
P	S 20	3:34	10:25	16:21	22:38		Tu 20	5:30	12:10	18:33	24:55		Tu 20	4:11	11:00	17:19	23:42	
		4.7	0.6	4.1	1.1			4.6	0.4	4.3	1.3			4.2	0.6	4.1	1.1	
	S 21	4:38	11:24	17:34	23:46		W 21	6:45	13:11	19:22	26:05		W 21	5:23	11:52	18:18	24:55	
		4.7	0.4	4.2	1.0			1.1	4.8	0.2	4.6			4.3	0.5	4.3	1.0	
S	M 22	5:40	12:20	18:37	24:55		Th 22	7:52	14:18	20:33	27:15		Th 22	6:35	12:52	19:17	25:53	
		4.9	0.2	4.5	1.1			0.7	5.0	0.0	4.8			0.9	4.5	0.4	4.6	
	Tu 23	0:48	6:40	13:12	19:30		F 23	2:17	8:08	14:30	20:42		F 23	1:20	7:11	13:32	19:42	
		0.8	5.1	-0.1	4.7			0.6	5.1	0.0	5.0			0.7	4.7	0.3	4.8	
●	W 24	1:38	7:30	14:00	20:18		S 24	2:57	8:48	15:11	21:18		●	S 24	1:59	7:53	14:10	20:17
		0.7	5.2	-0.2	4.9			0.6	5.1	0.0	5.1			0.6	4.8	0.3	5.0	
	Th 25	2:27	8:19	14:46	21:00	E	S 25	3:50	9:27	15:48	21:52		E	S 25	2:35	8:31	14:47	20:48
		0.7	5.3	-0.3	5.0			0.6	5.0	0.2	5.1			0.5	4.9	0.4	5.0	
	F 26	3:12	9:02	15:35	21:42		M 26	4:43	10:03	16:25	22:26		M	M 26	3:10	9:05	15:18	21:20
		0.7	5.3	-0.2	5.1			0.6	4.9	0.4	5.0			0.5	4.9	0.5	5.0	
	S 27	3:59	9:47	16:16	22:22		Tu 27	4:50	10:39	17:00	23:00		Tu 27	3:41	9:38	15:49	21:52	
		0.7	5.2	0.0	5.1			0.7	4.7	0.7	4.9			0.5	4.8	0.7	5.0	
	S 28	4:45	10:27	16:59	23:02		W 28	5:28	11:17	17:33	23:37		A	W 28	4:13	10:12	16:17	22:23
		0.8	5.0	0.2	5.0			0.9	4.5	1.0	4.7			0.6	4.7	0.9	4.9	
E	M 29	5:30	11:09	17:42	23:41									4:47	10:46	16:45	22:57	
		0.9	4.7	0.5	4.9									0.7	4.6	1.2	4.7	
	Tu 30	6:18	11:52	18:27	24:20									5:24	11:22	17:17	23:33	
		1.0	4.4	0.9	5.0									0.8	4.4	1.3	4.6	
	W 31	0:22	7:08	12:35	19:12									6:08	12:07	17:58	24:00	
		4.7	1.1	4.2	1.2									0.9	4.3	1.5	5.0	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Intercolonial Standard, 60th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRI										JUNE.												
Moon.		Day of		Time and F		L				Time and F		L				Time and F		L				
		W. Mo.																				
N	S	1	0:15	6:57	12:55	18:53	1.6	D	Tu	1	0:33	7:19	13:25	19:39	1.5	F	1	2:07	8:45	14:57	21:30	
			4.4	1.0	4.2	1.6					4.3	0.9	4.4	1.5				4.3	0.8	4.9	0.9	
	M	2	1:06	7:57	13:53	20:04	1.7		W	2	1:31	8:20	14:26	20:52	1.8	E	S	2	3:15	9:45	15:55	22:34
			4.3	1.1	4.1	1.7					4.3	0.9	4.5	1.8				4.4	0.7	5.0	0.5	
	Tu	3	2:06	9:00	15:00	21:20	1.5		Th	3	2:38	9:20	15:30	21:50	1.0		S	3	4:23	10:40	16:50	23:25
			4.2	1.0	4.1	1.5					4.3	0.8	4.6	1.0				4.6	0.6	5.2	0.2	
	W	4	3:14	10:01	16:07	22:29	1.2		F	4	3:49	10:20	16:30	22:55	0.6		M	4	5:28	11:37	17:50	
			4.3	0.8	4.3	1.2					4.4	0.6	4.9	0.6				4.8	0.4	5.4		
	Th	5	4:24	10:57	17:10	23:25	0.8	E	S	5	4:54	11:15	17:28	23:50	0.2		Tu	5	6:18	12:28	18:38	18:43
			4.5	0.5	4.7	0.8					4.7	0.4	5.2	0.2				-0.2	5.0	0.3	5.6	
	F	6	5:27	11:50	18:04				S	6	5:55	12:05	18:20			P	W	6	1:10	7:22	13:25	19:35
			4.8	0.2	5.1						5.0	0.2	5.5					-0.5	5.2	0.3	5.8	
	S	7	6:18	12:38	19:00	18:54			M	7	6:40	6:50	12:57	19:10			Th	7	2:00	8:15	14:17	20:25
			0.3	5.1	0.0	5.5					-0.2	5.3	0.0	5.8				-0.6	5.4	0.3	5.8	
E	S	8	1:07	7:17	13:26	19:11	5.8		Tu	8	1:30	7:43	13:46	20:00	6.0		F	8	2:52	9:07	15:12	21:15
			-0.1	5.4	-0.2	5.8					-0.6	5.5	-0.1	6.0				-0.7	5.4	0.4	5.7	
O	M	9	1:55	8:05	14:12	20:25	6.0		W	9	2:22	8:32	14:35	20:47	6.0		S	9	3:45	9:58	16:06	22:05
			-0.4	5.7	-0.3	6.0					-0.7	5.6	0.0	6.0				-0.6	5.3	0.6	5.5	
F	Tu	10	2:41	8:51	15:00	21:11	6.0		Th	10	3:10	9:22	15:29	21:35	5.8		S	10	4:40	10:50	17:10	22:57
			-0.5	5.8	-0.2	6.0					-0.7	5.6	0.2	5.8				-0.4	5.2	0.8	5.2	
	W	11	3:30	9:40	16:03	21:56	5.9		F	11	4:05	10:15	16:28	22:25	5.6		M	11	5:35	11:42	17:51	23:50
			-0.5	5.7	0.0	5.9					-0.6	5.5	0.4	5.6				-0.1	5.0	0.9	4.8	
	Th	12	4:22	10:30	16:40	22:44	5.6		S	12	4:58	11:05	17:25	23:14	5.2		Tu	12	6:35	12:36	18:45	
			-0.4	5.5	0.3	5.6					-0.3	5.2	0.7	5.2				0.2	4.8	1.0		
	F	13	5:15	11:20	17:38	23:32	5.2		S	13	5:57	12:00	18:34			C	W	13	7:44	7:35		20:28
			-0.2	5.2	0.7	5.2					0.0	4.9	1.0					4.5	0.4	4.6	1.1	
S	S	14	6:15	12:15	18:45				M	14	6:58	7:00	13:00	19:49	1.1		Th	14	1:45	8:35	14:30	21:30
			0.1	4.8	1.0						4.8	0.3	4.6	1.1				4.2	0.6	4.4	1.0	
C	S	15	6:27	7:20	13:16	20:00	1.2		Tu	15	1:10	8:06	14:06	21:00	1.1		F	15	2:50	9:31	15:26	22:22
			4.8	0.4	4.5	1.2					4.4	0.4	4.4	1.1				4.0	0.8	4.4	1.0	
	M	16	1:30	8:30	14:30	21:00	1.3		W	16	2:15	9:10	15:13	22:05	1.1		S	16	4:00	10:25	16:20	23:10
			4.4	0.6	4.2	1.3					4.1	0.6	4.3	1.1				3.8	0.9	4.4	0.9	
	Tu	17	2:42	9:38	15:45	22:30	1.2		Th	17	3:30	10:10	16:15	23:00	0.9		S	17	5:08	11:18	17:08	23:52
			4.1	0.7	4.1	1.2					4.0	0.7	4.3	0.9				4.1	1.0	4.4	0.8	
	W	18	3:58	10:40	16:53	23:20	1.0	E	F	18	4:41	11:05	17:08	23:47	0.8	A	M	18	6:58	12:02	17:52	
			4.0	0.7	4.2	1.0					4.0	0.7	4.4	0.8				3.9	1.1	4.6		
	Th	19	5:09	11:35	17:50				S	19	5:40	11:52	17:53				Tu	19	8:07	6:42	12:45	18:34
			4.1	0.6	4.4						4.1	0.8	4.5					0.7	4.0	1.2	4.6	
	F	20	6:18	6:08	12:25	18:34	4.6		S	20	6:28	6:30	12:37	19:35	4.6		W	20	1:08	7:20	13:20	19:12
			0.8	4.3	0.6	4.6					0.7	4.2	0.6	4.6				0.5	4.1	1.2	4.8	
E	S	21	1:00	6:55	13:08	19:13	4.8		M	21	1:58	7:12	13:20	19:10	4.7		Th	21	1:43	7:55		19:47
			0.7	4.4	0.6	4.8					0.6	4.3	0.9	4.7				0.4	4.3	1.3	4.9	
	S	22	1:35	7:35	13:45	19:46	4.8	A	Tu	22	1:40	7:48	13:51	19:43	4.8	N	F	22	2:18	8:29	14:20	20:25
			0.6	4.5	0.6	4.8					0.5	4.3	1.0	4.8				0.3	4.4	1.3	4.9	
●	M	23	2:10	8:10	14:18	20:15	4.9	●	W	23	2:13	8:18	14:18	20:17	4.9		S	23	2:53	9:08	14:51	21:02
			0.5	4.6	0.7	4.9					0.4	4.4	1.2	4.9				0.2	4.6	1.2	4.9	
	Tu	24	2:41	8:41	14:46	20:47	4.9		Th	24	2:43	8:51	14:45	20:49	4.9		S	24	3:30	9:41	15:30	21:41
			0.4	4.6	0.9	4.9					0.3	4.5	1.2	4.9				0.2	4.7	1.2	4.9	
A	W	25	3:10	9:13	15:13	21:18	4.9		F	25	3:15	9:25	15:10	21:23	4.8		M	25	4:08	10:21	16:12	22:22
			0.4	4.6	1.0	4.9					0.3	4.6	1.3	4.8				0.3	4.9	1.1	4.8	
	Th	26	3:41	9:46	15:40	21:50	4.8	N	S	26	3:50	10:00	15:45	22:00	4.7		Tu	26	4:50	11:00	17:00	23:05
			0.5	4.6	1.2	4.8					0.4	4.6	1.3	4.7				0.3	4.9	1.1	4.7	
	F	27	4:15	10:20	16:05	22:23	4.7		S	27	4:28	10:40	16:20	22:39	4.6		W	27	5:45	11:50	17:57	23:51
			0.6	4.6	1.3	4.7					0.4	4.6	1.3	4.6				0.5	5.0	1.1	4.6	
	S	28	4:51	10:59	16:41	23:00	4.6		M	28	5:10	11:22	17:10	23:20	4.5		Th	28	6:25	12:38	18:56	
			0.6	4.5	1.4	4.6					0.5	4.7	1.4	4.5				0.6	5.0	1.1		
N	S	29	5:32	11:42	17:28	23:43	4.5		Tu	29	5:57	12:10	18:10				F	29	7:45	7:17	13:00	20:00
			0.7	4.4	1.4	4.5					0.7	4.7	1.4					4.5	0.8	4.9	1.0	
	M	30	6:22	12:30	18:26				W	30	6:10	6:50	13:02	19:18	1.3		S	30	1:48	8:14	14:25	21:04
			0.8	4.4	1.5						4.4	0.8	4.7	1.3				4.4	0.9	4.9	0.8	
								D	Th	31	1:05	7:45	13:54	20:25	1.2							
											4.4	0.8	4.8	1.2								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus ( - ) sign is before the height, in which case subtract it.

The time used is Intercolonial Standard, 50th meridian W., 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3.47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.								
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				
	W. Mo.						W. Mo.						W. Mo.					
S	1	2:45	9:13	15:23	22:05	P	W	1	4:52	11:05	17:05	23:46	S	1	0:31	6:50	13:05	18:55
		4.4	0.9	4.9	0.6				4.2	1.1	4.8	0.2			0.2	4.6	0.7	4.9
M	2	3:55	10:18	16:24	23:02	S	Th	2	6:00	12:10	18:06		S	2	1:20	7:36	13:50	19:43
		4.4	0.9	5.0	0.3				4.4	0.9	5.0				0.1	4.9	0.6	5.1
Tu	3	5:05	11:16	17:23	23:59	F	3	0:40	7:00	13:08	19:02	M	3	2:05	8:18	14:33	20:27	
		4.5	0.8	5.2	0.0				0.0	4.7	0.7	5.2			0.0	5.1	0.5	5.2
P W	4	6:10	12:18	18:21		○	S	4	1:31	7:50	13:59	19:55	Tu	4	2:48	8:58	15:13	21:08
		4.7	0.7	5.4					—0.2	4.9	0.6	5.3			0.0	5.2	0.4	5.1
S Th	5	0:52	7:08	13:12	19:17		S	5	2:20	8:38	14:47	20:42	E W	5	3:30	9:32	15:52	21:46
		—0.3	4.9	0.6	5.5				—0.3	5.1	0.6	5.4			0.1	5.2	0.5	5.0
○ F	6	1:45	8:01	14:05	20:09	M	6	3:09	9:20	15:35	21:28	Th	6	4:08	10:09	16:34	22:26	
		—0.4	5.1	0.5	5.6				—0.3	5.2	0.6	5.3			4.0	5.1	0.6	4.8
S	7	2:37	8:51	15:00	20:59	Tu	7	3:55	10:05	16:25	22:13	F	7	4:48	10:45	17:16	23:04	
		—0.5	5.2	0.5	5.6				—0.1	5.2	0.6	5.1			0.7	5.0	0.7	4.6
S	8	3:28	9:40	15:58	21:47	E W	8	4:41	10:45	17:12	22:55	S	8	5:25	11:24	18:00	23:45	
		—0.5	5.2	0.6	5.4				0.1	5.1	0.7	4.9			1.0	4.8	0.9	4.3
M	9	4:20	10:28	16:51	22:35	Th	9	5:26	11:25	18:02	23:38	A S	9	6:06	12:02	18:50		
		—0.3	5.2	0.7	5.2				0.4	5.0	0.9	4.6			1.3	4.5	1.1	
Tu	10	5:10	11:15	17:49	23:22	F	10	6:15	12:08	18:55		○ M	10	0:30	6:50	12:46	19:44	
		—0.1	5.1	0.8	4.9				0.7	4.8	1.0				4.1	1.6	4.3	1.2
W	11	6:05	12:05	18:47		○ S	11	0:23	7:08	12:53	19:47	Tu	11	1:20	7:46	13:35	20:40	
		0.2	4.9	0.9					4.3	1.1	4.6	1.1			3.9	1.8	4.2	1.2
E Th	12	0:12	7:00	12:52	19:45	S	12	1:13	7:55	13:38	20:41	N W	12	2:20	8:50	14:35	21:36	
		4.5	0.5	4.7	1.0				4.0	1.4	4.4	1.2			3.8	1.8	4.1	1.1
○ F	13	1:06	7:52	13:42	20:41	A M	13	2:06	8:50	14:30	21:34	Th	13	3:27	9:55	15:37	22:30	
		4.2	0.8	4.6	1.1				3.8	1.5	4.2	1.1			3.8	1.7	4.1	0.9
S	14	2:02	8:49	14:34	21:35	Tu	14	3:14	9:45	15:25	22:25	F	14	4:30	10:54	16:40	23:20	
		3.9	1.0	4.4	1.1				3.6	1.6	4.2	1.0			4.0	1.4	4.3	0.7
S	15	3:06	9:41	15:25	22:25	W	15	4:20	10:40	16:22	23:14	S	15	5:28	11:41	17:38		
		3.7	1.2	4.3	1.0				3.7	1.6	4.2	0.8			4.3	1.1	4.6	
A M	16	4:10	10:34	16:18	23:12	N Th	16	5:20	11:30	17:20	23:58	S	16	0:06	6:18	12:30	18:30	
		3.6	1.3	4.3	0.9				3.8	1.4	4.4	0.6			0.4	4.7	0.7	5.0
Tu	17	5:13	11:22	17:08	23:55	F	17	6:10	12:18	18:10		M	17	0:50	7:04	13:11	19:18	
		3.7	1.4	4.4	0.7				4.1	1.2	4.7			0.1	5.2	0.8	5.3	
W	18	6:05	12:09	17:56		S	18	0:40	6:55	13:00	18:58	● Tu	18	1:32	7:46	13:56	20:05	
		3.8	1.4	4.5					0.3	4.5	1.0	4.9			—0.1	5.5	0.0	5.5
N Th	19	0:35	6:48	12:49	18:40	● S	19	1:22	7:35	13:40	19:41	E W	19	2:15	8:28	14:38	20:48	
		0.5	4.1	1.3	4.7				0.1	4.8	0.7	5.2			—0.3	5.7	—0.2	5.6
F	20	1:15	7:28	13:27	19:23	M	20	2:04	8:17	14:19	20:26	Th	20	2:58	9:11	15:25	21:34	
		0.3	4.3	1.2	4.9				—0.1	5.2	0.5	5.3			—0.3	5.8	—0.2	5.6
● S	21	1:52	8:04	14:02	20:04	Tu	21	2:45	8:55	15:00	21:08	P F	21	3:42	9:55	16:12	22:18	
		0.1	4.6	1.1	5.0				—0.2	5.4	0.8	5.4			—0.1	5.8	—0.2	5.5
S	22	2:30	8:42	14:38	20:47	W	22	3:25	9:38	15:45	21:50	S	22	4:28	10:38	17:04	23:05	
		0.0	4.8	0.9	5.1				—0.2	5.6	0.3	5.4			0.2	5.6	0.0	5.2
M	23	3:08	9:21	15:19	21:25	E Th	23	4:08	10:18	16:31	22:35	S	23	5:18	11:25	18:00	23:58	
		0.0	5.0	0.8	5.1				—0.1	5.6	0.3	5.3			0.6	5.3	0.3	4.9
Tu	24	3:48	10:00	16:02	22:07	F	24	4:50	11:02	17:22	23:21	M	24	6:18	12:15	19:03		
		0.0	5.2	0.8	5.1				0.2	5.5	0.4	5.1			0.9	4.9	0.5	
W	25	4:29	10:42	16:50	22:50	S	25	5:38	11:47	18:18		○ Tu	25	0:55	7:26	13:12	20:12	
		0.1	5.2	0.7	5.0				0.5	5.3	0.5				4.5	1.3	4.6	0.7
E Th	26	5:12	11:27	17:40	23:37	○ S	26	0:10	6:30	12:38	19:19	W	26	2:04	8:48	14:20	21:23	
		0.3	5.2	0.8	4.8				4.8	0.9	5.0	0.7			4.2	1.4	4.3	0.7
F	27	6:00	12:12	18:37		P M	27	1:06	7:32	13:32	20:26	Th	27	3:22	10:03	15:36	22:29	
		0.5	5.2	0.8					4.5	1.2	4.7	0.8			4.0	1.3	4.2	0.7
○ S	28	0:27	6:50	13:03	19:39	Tu	28	2:12	8:44	14:36	21:35	F	28	4:40	11:10	16:50	23:27	
		4.6	0.8	5.0	0.8				4.2	1.3	4.5	0.7			4.1	1.1	4.3	0.5
S	29	1:21	7:49	13:57	20:44	S W	29	3:30	10:00	15:45	22:40	S	29	5:43	12:06	17:55		
		4.4	1.0	4.9	0.8				4.0	1.3	4.4	0.6			4.3	0.9	4.5	
M	30	2:26	8:50	14:57	21:45	Th	30	4:46	11:09	16:54	23:37	S	30	0:18	6:34	12:58	18:46	
		4.2	1.1	4.8	0.7				4.1	1.2	4.5	0.4			0.4	4.6	0.7	4.7
Tu	31	3:38	9:58	16:00	22:48	F	31	5:55	12:09	18:00								
		4.1	1.2	4.7	0.5				4.3	1.0	4.7							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings in the Admiralty Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Intercolonial Standard, 60th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon, (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ○, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.							
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
F	M 1	1:06 0.3	7:17 4.9	13:33 0.5	19:30 4.9	O	Th 1	2:01 0.7	8:00 5.0	14:24 0.3	20:27 4.7	A	S 1	2:10 1.1	8:03 4.9	14:32 0.3	20:40 4.4
	Tu 2	1:45 0.3	7:52 5.1	14:12 0.4	20:10 4.9		F 2	2:31 0.9	8:30 5.0	14:55 0.3	21:00 4.6		S 2	2:36 1.3	8:36 4.9	15:05 0.8	21:14 4.5
	W 3	2:25 0.3	8:29 5.1	14:48 0.3	20:47 4.9		S 3	3:00 1.0	9:04 4.9	15:28 0.4	21:34 4.6		N M 3	3:00 1.3	9:09 4.8	15:39 0.4	21:45 4.5
	Th 4	3:00 0.5	9:00 5.1	15:24 0.4	21:22 4.8		A S 4	3:26 1.2	9:35 4.8	16:01 0.5	22:07 4.5		Tu 4	3:26 1.4	9:43 4.7	16:10 0.5	22:23 4.6
	F 5	3:32 0.7	9:34 5.0	15:57 0.6	21:57 4.7		M 5	3:54 1.3	10:09 4.7	16:38 0.6	22:45 4.4		W 5	4:06 1.4	10:20 4.6	16:49 0.6	23:03 4.6
A	S 6	4:05 1.0	10:07 4.9	16:35 0.6	22:34 4.5	N	Tu 6	4:25 1.5	10:42 4.5	17:15 0.8	23:25 4.4	C	Th 6	4:45 1.4	11:00 4.5	17:32 0.7	23:48 4.6
	S 7	4:34 1.2	10:40 4.7	17:12 0.8	23:12 4.4		W 7	5:06 1.6	11:22 4.4	18:02 0.9			F 7	5:40 1.4	11:46 4.4	18:21 0.8	
	M 8	5:17 1.4	11:18 4.5	17:56 1.0	23:54 4.2		Th 8	0:13 4.3	6:04 1.6	12:11 4.2	18:58 1.0		S 8	0:38 4.6	6:46 1.4	12:40 4.3	19:15 0.9
	Tu 9	5:48 1.6	12:00 4.3	18:46 1.1			C F 9	1:06 4.3	7:16 1.7	13:08 4.1	19:58 1.0		S 9	1:30 4.7	7:57 1.3	13:37 4.3	20:14 0.9
	W 10	0:42 4.1	6:45 1.8	12:48 4.1	19:45 1.2	C	S 10	2:04 4.4	8:34 1.5	14:12 4.2	21:00 0.9	E	M 10	2:28 4.8	9:04 1.0	14:45 4.3	21:15 0.8
N	Th 11	1:39 4.0	8:00 1.8	13:45 4.1	20:47 1.1		S 11	3:07 4.5	9:40 1.2	15:20 4.3	21:56 0.7		Tu 11	3:26 4.9	10:00 0.7	15:52 4.5	22:10 0.7
	F 12	2:44 4.1	9:12 1.6	14:52 4.5	21:45 0.9		M 12	4:06 4.8	10:36 0.7	16:29 4.6	22:50 0.5		W 12	4:25 5.1	11:00 0.3	17:00 4.6	23:10 0.5
	S 13	3:48 4.3	10:17 1.3	16:00 4.3	22:40 0.7		E Tu 13	5:00 5.1	11:29 0.3	17:30 4.9	23:40 0.3		Th 13	5:22 5.4	11:52 -0.1	18:00 4.9	
	S 14	4:48 4.6	11:09 0.9	17:04 4.6	23:28 0.4	P	W 14	5:54 5.5	12:17 -0.2	18:25 5.2		S	F 14	0:07 0.4	6:17 5.6	12:45 -0.4	18:52 5.1
E	M 15	5:40 5.0	11:57 0.4	18:00 4.9			Th 15	0:31 0.1	6:45 5.7	13:08 -0.6	19:16 5.4		P S 15	1:00 0.3	7:10 5.8	13:35 -0.7	19:50 5.3
	Tu 16	0:15 0.1	6:28 5.4	12:45 0.0	18:51 5.3		F 16	1:20 0.0	7:34 5.9	13:54 -0.7	20:06 5.6		S S 16	1:50 0.3	8:00 5.9	14:26 -0.8	20:41 5.5
	W 17	1:00 -0.1	7:15 5.7	13:30 -0.3	19:40 5.6		S 17	2:08 0.0	8:20 6.0	14:44 -0.8	20:56 5.6		M 17	2:42 0.3	8:50 5.9	15:17 -0.7	21:31 5.5
	Th 18	1:46 -0.2	8:00 5.9	14:17 -0.5	20:27 5.7	P	S 18	2:57 0.2	9:08 5.9	15:34 -0.7	21:46 5.5	W	Tu 18	3:37 0.4	9:40 5.7	16:10 -0.5	22:22 5.4
P	F 19	2:30 -0.2	8:44 6.0	15:04 -0.6	21:15 5.7		S M 19	3:50 0.4	9:56 5.7	16:24 -0.5	22:38 5.8		W 19	4:36 0.6	10:30 5.4	17:05 -0.3	23:14 5.2
	S 20	3:20 0.0	9:30 5.9	15:53 -0.5	22:01 5.5		Tu 20	4:50 0.7	10:46 5.3	17:25 -0.1	23:32 5.0		Th 20	5:40 0.8	11:20 5.0	18:15 0.0	
	S 21	4:06 0.3	10:17 5.6	16:45 -0.2	22:50 5.3		W 21	5:56 0.9	11:40 4.9	18:27 0.2			F 21	0:08 5.0	6:50 0.9	12:17 4.7	19:06 0.3
	M 22	5:00 0.7	11:04 5.3	17:42 0.1	23:45 4.9	D	Th 22	0:30 4.8	7:11 1.1	12:40 4.5	19:34 0.4	E	S 22	1:06 4.7	7:56 1.0	13:17 4.3	20:06 0.5
D	Tu 23	6:08 1.0	11:58 4.9	18:46 0.4			F 23	1:35 4.5	8:28 1.1	13:46 4.2	20:42 0.5		S 23	2:01 4.6	9:00 1.0	14:24 4.0	21:07 0.7
	W 24	0:45 4.6	7:25 1.3	12:57 4.5	19:58 0.6		S 24	2:40 4.4	9:37 1.0	15:00 4.0	21:42 0.6		M 24	3:00 4.4	10:00 0.9	15:35 3.9	22:05 0.9
	Th 25	1:54 4.3	8:46 1.3	14:08 4.2	21:06 0.6		S 25	3:45 4.4	10:36 0.9	16:14 4.0	22:40 0.7		Tu 25	3:58 4.4	10:51 0.8	16:45 3.8	23:00 1.0
	F 26	3:10 4.2	10:00 1.1	15:24 4.1	22:11 0.6	E	M 26	4:42 4.5	11:27 0.8	17:20 4.1	23:32 0.7	A	W 26	4:50 4.4	11:40 0.8	17:48 3.9	23:50 1.1
E	S 27	4:20 4.2	11:00 1.0	16:40 4.1	23:10 0.5		Tu 27	5:30 4.6	12:10 0.6	18:15 4.2			Th 27	5:40 4.5	12:21 0.7	18:35 4.0	
	S 28	5:18 4.4	11:52 0.8	17:41 4.3	23:59 0.5		W 28	0:20 0.8	6:17 4.7	12:50 0.5	18:53 4.3		A F 28	0:38 1.1	6:22 4.6	13:00 0.5	19:15 4.1
	M 29	6:08 4.7	12:35 0.6	18:32 4.5			Th 29	1:06 0.8	6:56 4.8	13:26 0.4	19:36 4.3		S 29	1:17 1.2	7:01 4.7	13:35 0.4	19:50 4.2
	Tu 30	0:44 0.5	6:50 4.9	13:14 0.4	19:16 4.6	O	F 30	1:42 1.0	7:30 4.9	14:00 0.8	20:10 4.4	S	S 30	1:50 1.2	7:38 4.8	14:10 0.3	20:20 4.4
	W 31	1:25 0.6	7:27 4.9	13:50 0.8	19:55 4.7								M 31	2:20 1.3	8:14 4.9	14:41 0.2	20:52 4.5

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Intercolonial Standard, 60th meridian W.: 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.													
Moon.	Day of—		Time and Height									1	
	W.	Mo.	Low W.										
E	M	1	4:18	10:33	16:40	22:56	D	Th	1	5:12	11:30	17:36	23:50
			21.4	2.7	20.9	2.6				20.2	4.1	19.1	4.6
	Tu	2	5:10	11:25	17:32	23:48		F	2	6:00	12:20	18:26	
A	W	3	6:02	12:20	18:27		S			6:40	6:53	18:15	19:20
			20.3	4.0	19.4					19.7	4.6	18.7	
	Th	4	6:41	13:15	19:24					1:36	7:44	14:10	20:12
N	F	5	7:34	14:10	20:14		M	5	2:26		15:00	21:04	
			4.4	19.9	4.2	18.9				4.8	20.1	8.6	19.6
	S	6	8:26	15:05	21:02			Tu	6	3:20		16:50	21:54
O	S	7	9:14	15:44	21:47		W	7	4:06	10:10	16:35	22:40	
			4.8	20.4	3.3	19.6				3.8	21.8	1.6	21.6
	M	8	9:58	16:26	22:28			Th	8	4:52	11:00	17:30	23:25
P	Tu	9	10:40	17:06	23:10		O	F	9	5:38	11:42		
			3.4	21.6	1.8	21.0				1.8		-0.3	
	W	10	5:20	11:25	17:45	23:50		S	10	6:06	6:20	12:28	18:45
E	Th	11	6:00	12:05	18:25		M	11	6:52	7:05	13:11	19:30	
			2.8	22.8	0.5					24.1	-0.1	24.6	-1.1
	F	12	6:20	6:40	12:45	19:10		Tu	12	1:38	7:50	13:56	20:15
N	S	13	1:12	7:22	13:30	19:50	P	W	13	2:28	8:37	14:46	21:08
			22.9	1.3	23.5	-0.1				24.4	-0.3	24.2	-0.4
	S	14	1:56	8:07	14:15	20:36		Th	14	3:12	9:29	15:37	21:54
O	M	15	2:44	8:56	15:04	21:24	C	F	15	4:05	10:25	16:35	22:50
			23.8	1.0	23.2	0.8				23.3	0.7	22.4	1.6
	Tu	16	3:34	9:47	15:55	22:15		S	16	5:00	11:24	17:34	23:50
P	W	17	4:28	10:48	16:54	23:10	S	17	5:06	12:28	18:40		
			22.9	1.4	22.2	1.6				21.9	2.0	20.8	
	Th	18	5:25	11:48	17:52					0:56	7:10	13:25	19:50
E	F	19	6:10	12:54	18:57		M	18	1:01	21:6	2.2	20.5	
			2.2	22.1	1.9	21.3				2:06	8:20	14:42	20:57
	S	20	1:18	7:28	13:50	20:04		Tu	20	3:13	9:20	15:45	21:58
N	M	21	2:18	8:30	14:55	21:08	W	21	4:15	10:20	16:44	22:55	
			2.5	22.5	1.3	21.5				2.0	22.7	0.7	22.0
	Tu	22	3:22	9:32	15:58	22:08		Th	22	5:07	11:10	17:32	
O	W	23	4:22	10:20	16:54	23:05	O	F	23	6:55	12:00	18:20	
			1.5	23.5	-0.1	22.6				0.9	23.4	0.0	
	Th	24	5:16	11:24	17:46	23:56		S	24	0:26	6:40	12:43	19:00
P	F	25	6:09	12:14	18:35		E	S	25	1:10	7:20	13:25	19:40
			0.6	24.0	-0.7					22.7	1.0	22.8	0.8
	S	26	6:46	6:55	13:00	19:20		M	26	1:46	7:58	14:04	20:16
E	M	27	7:34	13:47	20:05		W	27	2:27	8:45	14:40	20:53	
			22.9	0.9	23.3	0.1				22.0	2.0	21.3	2.3
	Tu	28	8:26	14:30	20:49					3:10	9:17	15:13	21:30
N	W	29	9:14	15:15	21:30		A	W	28	4:02	9:10		
			22.1	2.0	21.7	1.8				2.9	21.6	1.8	21.3
	Th	30	10:04	16:00	22:14			Th	29	5:00	10:06	16:28	22:37
O	F	31	10:40	16:45	23:00					2.1	22.2	1.2	21.9
			20.8	3.5	19.8	3.7		F	30	6:06	11:42	17:58	
								S	31	7:00	12:24	18:37	

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The time used is Intercolonial Standard, 60th meridian, W.; 0° is midnight, 12° is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

N	S	1	4:25	10:48	16:52	22:04	D	Tu	1	11:00	11:06	17:15	22:28	F	1	0:00	6:06	12:00	18:42	
			19.6	8.9	19.3	4.9				20.1	8.3	20.1	4.8			3.0	21.1	2.2	21.7	
D	M	2	5:15	11:40	17:50			W	2	5:38	12:00	18:15		E	S	2	1:00	7:10	13:30	19:42
			19.6	4.0	19.8					20.2	8.2	20.4				2.5	21.6	1.9	22.4	
	Tu	3	0:02	6:14	12:40	18:50		Th	3	0:30	6:37	13:04	19:17		S	3	2:02	8:11	14:29	20:40
			5.0	19.7	3.9	19.6				4.8	20.5	2.7	21.1			1.6	22.3	1.3	23.3	
	W	4	1:04	7:15	13:38	19:50		F	4	1:32	7:40	14:02	20:12		M	4	3:00	9:09	15:25	21:35
			4.6	20.2	8.2	20.4				8.1	21.4	2.0	22.1			0.6	22.1	0.6	24.2	
	Th	5	2:04	8:14	14:38	20:45	E	S	5	2:32	8:40	15:00	21:10		Tu	5	3:58	10:07	16:21	22:30
			8.7	21.1	2.2	21.6				1.9	22.4	1.0	23.3			-0.5	23.8	0.0	25.0	
	F	6	3:02	9:10	15:30			S	6	3:27	9:35	15:54	22:00	P	W	6	4:53	11:00	17:14	23:21
			2.4	22.3	1.0	22.9				0.6	23.5	0.0	24.4			-1.4	24.3	-0.6	25.6	
	S	7	3:58	10:02	16:22	22:30		M	7	4:21	10:30	16:44	22:55		Th	7	5:45	11:54	18:06	
			0.9	23.6	-0.1	24.2				-0.7	24.5	-0.7	25.3			-2.1	24.5	-0.7		
	S	8	4:48	10:54	17:10	23:17		Tu	8	5:12	11:20	17:33	23:40	S	F	8	0:14	6:37	12:49	18:58
			-0.4	24.7	-1.0	25.7				-1.8	25.3	-1.0	26.6			25.7	-2.3	24.5	-0.6	
	M	9	5:34	11:44	17:58			W	9	6:02	12:10	18:24			S	9	1:06	7:29	13:38	19:50
			-1.8	25.8	-1.4					-2.4	26.4	-1.4				25.4	-2.0	24.2	-0.2	
P	Tu	10	0:06	6:22	12:30	18:44		Th	10	0:31	6:34	13:00	19:12		S	10	1:57	8:20	14:32	20:43
			25.4	-2.2	26.1	-1.8				26.0	-2.5	26.6	-1.0			24.8	-1.4	23.5	0.6	
	W	11	0:50	7:12	13:19	19:33		F	11	1:20	7:44	13:55	20:06		M	11	2:52	9:15	15:28	21:38
			26.6	-2.4	26.2	-1.8				25.7	-2.2	24.5	-0.4			23.9	-0.5	22.6	1.3	
	Th	12	1:40	8:00	14:10	20:22		S	12	2:15	8:35	14:48	21:00		Tu	12	3:48	10:10	16:23	22:40
			25.6	-2.0	24.8	-0.6				24.9	-1.5	23.7	0.5			22.6	0.6	22.0	1.9	
	F	13	2:32	8:52	15:02	21:16		S	13	3:10	9:34	15:45	21:56		W	13	4:47	11:10	17:21	23:30
			24.9	-1.2	23.8	0.6				24.1	-0.5	22.7	1.6			21.8	1.5	21.5	2.7	
	S	14	3:26	9:50	16:00	22:15		M	14	4:06	10:32	16:46	23:00		Th	14	5:49	12:06	18:20	
			23.8	-0.2	22.5	1.7				22.8	0.6	21.3	2.4			21.0	2.3	21.1		
C	S	15	4:26	10:50	17:05	23:18		Tu	15	5:12	11:35	17:50		E	F	15	0:40	6:50	13:06	19:16
			22.7	0.9	21.5	2.7				21.7	1.6	21.1				3.1	20.5	8.0	20.8	
	M	16	5:20	11:58	18:12			W	16	6:08	12:30	18:40	19:56		S	16	1:40	7:48	14:04	20:12
			21.7	1.9	20.8					2.9	21.1	2.3	20.9			3.3	20.1	3.3	20.8	
	Tu	17	0:28	6:40	13:06	19:21		Th	17	1:15	7:25	13:43	19:56		S	17	2:36	8:43	14:55	21:04
			5.2	21.1	2.4	21.1				8.1	20.8	2.5	20.9			3.3	19.9	8.4	20.8	
	W	18	1:39	7:50	14:10	20:27	E	F	18	2:17	8:24	14:40	20:50	A	M	18	3:27	9:34	15:45	21:48
			3.3	21.0	2.4	21.1				2.9	20.8	2.6	21.2			3.1	19.8	8.6	21.0	
	Th	19	2:25	8:50	15:10	21:22		S	19	3:13	9:20	15:34	21:40		Tu	19	4:10	10:20	16:30	22:30
			2.9	21.3	2.1	21.3				2.5	20.9	2.5	21.5			2.9	19.9	8.5	21.1	
	F	20	3:40	9:48	16:04	22:14		S	20	4:04	10:10	16:20	22:25		W	20	4:52	11:00	17:06	23:10
			2.3	21.6	1.8	21.8				2.2	20.9	2.5	21.6			2.5	20.0	8.5	21.2	
E	S	21	4:30	10:57	16:50	22:55		M	21	4:46	10:51	17:00	23:06		Th	21	5:30	11:33	17:40	23:42
			1.7	21.8	1.6	22.1				2.0	20.8	2.5	21.7			2.8	20.2	8.4	21.4	
	S	22	5:15	11:20	17:32	23:26	A	Tu	22	5:26	11:20	17:38	23:40	N	F	22	6:06	12:06	18:14	
			1.5	21.8	1.6	22.2				2.0	20.7	2.8	21.6			2.1	20.6	8.3		
	M	23	6:05	11:58	18:08			W	23	6:00	12:02	18:15			S	23	0:17	6:38	12:40	18:50
			1.4	21.6	1.9					2.0	20.7	3.0				21.6	1.8	21.0	3.1	
	Tu	24	0:10	6:30	12:32	18:42		Th	24	0:10	6:32	12:34	18:42		S	24	0:56	7:15	13:20	19:28
			22.1	1.6	21.2	2.4				21.5	2.1	20.5	3.3			21.7	1.5	21.3	2.9	
A	W	25	0:42	7:00	13:02	19:12		F	25	0:44	7:06	13:06	19:15		M	25	1:52	8:12	14:20	20:30
			21.7	2.0	20.9	2.9				21.4	2.2	20.6	3.4			21.9	1.4	21.6	2.7	
	Th	26	1:15	7:32	13:35	19:44	N	S	26	1:18	7:40	13:40	19:48		Tu	26	2:11	8:34	14:42	20:52
			21.4	2.3	20.6	3.3				21.3	2.2	20.7	3.5			22.0	1.3	21.9	2.5	
	F	27	1:48	8:07	14:10	20:16		S	27	1:54	8:16	14:20	20:30		W	27	2:58	9:21	15:30	21:40
			21.1	2.5	20.4	3.7				21.2	2.2	20.8	3.6			22.0	1.4	22.0	2.4	
	S	28	2:22	8:42	14:45			M	28	2:32	8:58	15:04	21:12		Th	28	3:48	10:10	16:22	22:34
			20.8	2.8	20.3	4.0				21.1	2.2	20.9	3.6			21.8	1.5	22.1	2.3	
N	S	29	3:00	9:24	15:30	21:40		Tu	29	3:20	9:43	15:52	22:05	D	F	29	4:44	11:06	17:18	23:30
			20.5	3.0	20.1	4.3				21.0	2.3	20.8	3.6			21.7	1.7	22.0	2.2	
	M	30	3:47	10:12	16:20	22:30		W	30	4:12	10:35	16:48		E	S	30	5:40	12:00	18:15	
			20.2	3.3	20.0	4.4				20.9	2.4	21.0	3.4			21.6	2.0	22.1		
	Th	31								5:09	11:00	17:45								
										21.0	2.5	21.3								

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●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

●, new moon; ☾, 1st quarter; ☉, full moon, ☾, 3d quar., E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

		NOVEMBER.										DECEMBER.													
Moon.		Day of		Time and Height of High and Low Water										Day of		Time and Height of High and Low Water									
		W. M.												W. Mo.											
F	O	M	1	4:50 0.7	10:57 22.7	17:14 0.8	23:20 23.0	O	Th	1	6:52 1.6	11:56 22.5	18:14 1.2	A	S	1	6:02 2.9	12:08 21.6	18:25 2.0	N	S	1	6:02 2.9	12:08 21.6	18:25 2.0
		Tu	2	5:35 0.5	11:40 23.1	17:57 0.6			F	2	0:20 21.5	6:30 2.0	12:30 22.2		S	2	0:26 20.4	6:35 3.2	12:35 21.3		S	2	0:26 20.4	6:35 3.2	12:35 21.3
A	N	W	3	0:04 23.0	6:17 0.6	12:22 23.1	18:33 0.6	A	S	3	0:54 21.1	7:02 2.6	13:06 21.8	C	M	3	1:00 20.3	7:08 3.6	13:10 21.1	E	M	3	1:00 20.3	7:08 3.6	13:10 21.1
		Th	4	0:44 22.6	6:55 1.0	13:00 22.8	19:16 1.0		S	4	1:27 20.7	7:35 3.2	13:40 21.2		Tu	4	1:34 20.3	7:43 3.7	13:43 21.0		W	4	1:34 20.3	7:43 3.7	13:43 21.0
N	C	F	5	1:23 21.9	7:30 1.7	13:38 22.3	19:52 1.6	N	M	5	2:00 20.3	8:10 3.7	14:13 20.8	E	W	5	2:07 20.5	8:18 3.8	14:20 20.8	E	W	5	2:07 20.5	8:18 3.8	14:20 20.8
		S	6	1:55 21.3	8:06 2.5	14:11 21.6	20:23 2.3		Tu	6	2:36 20.0	8:45 4.1	14:50 20.4		Th	6	2:45 20.7	9:00 3.5	15:00 20.7		Th	6	2:45 20.7	9:00 3.5	15:00 20.7
C	E	S	7	2:32 20.6	8:42 3.8	14:50 20.9	21:05 2.9	C	W	7	3:20 19.9	9:26 4.3	15:34 20.0	E	F	7	3:35 20.7	9:45 3.7	15:50 20.7	E	F	7	3:35 20.7	9:45 3.7	15:50 20.7
		M	8	3:06 20.0	9:20 4.0	15:25 20.2	21:46 3.6		Th	8	4:06 19.8	10:15 4.6	16:22 19.8		S	8	4:25 20.9	10:35 3.5	16:42 20.7		S	8	4:25 20.9	10:35 3.5	16:42 20.7
E	N	Tu	9	3:52 19.4	10:03 4.7	16:10 19.6	22:34 4.1	E	F	9	4:55 19.9	11:06 4.6	17:14 19.8	N	S	9	5:17 21.2	11:30 3.8	17:40 21.5	N	S	9	5:17 21.2	11:30 3.8	17:40 21.5
		W	10	4:40 19.1	10:52 5.6	17:00 19.3	23:25 4.2		S	10	5:50 20.1	12:06 4.3	18:15 20.1		M	10	6:00 2.5	6:14 21.5	12:31 2.8		M	10	6:00 2.5	6:14 21.5	12:31 2.8
N	C	Th	11	5:32 19.0	11:45 5.8	17:55 19.2		N	S	11	6:38 3.2	6:50 20.7	13:06 8.6	C	Tu	11	6:58 2.2	7:10 22.1	13:32 2.1	E	Tu	11	6:58 2.2	7:10 22.1	13:32 2.1
		F	12	0:20 4.3	6:30 19.2	12:46 5.0	18:54 19.5		M	12	1:11 2.5	7:46 21.6	14:06 2.5		W	12	1:56 1.7	8:10 22.9	14:30 1.2		W	12	1:56 1.7	8:10 22.9	14:30 1.2
C	E	S	13	1:20 3.8	7:28 19.9	13:45 4.8	19:53 20.3	C	Tu	13	2:32 1.7	8:41 22.7	15:00 1.3	E	Th	13	2:55 1.1	9:05 23.8	15:30 0.1	E	Th	13	2:55 1.1	9:05 23.8	15:30 0.1
		S	14	2:15 3.0	8:26 21.0	14:42 5.1	20:49 21.4		W	14	3:27 0.6	9:35 23.9	15:55 0.0		F	14	3:54 0.4	10:00 24.6	16:24 -0.9		F	14	3:54 0.4	10:00 24.6	16:24 -0.9
E	N	M	15	3:10 1.8	9:18 22.2	15:34 1.7	21:40 22.7	E	Th	15	4:18 -0.2	10:26 24.9	16:46 -1.2	N	S	15	4:47 -0.2	10:52 25.3	17:11 -1.7	N	S	15	4:47 -0.2	10:52 25.3	17:11 -1.7
		Tu	16	4:00 0.6	10:06 23.5	16:25 0.3	22:30 23.9		F	16	5:09 -0.9	11:15 25.5	17:36 -2.0		S	16	5:39 -0.6	11:46 25.7	18:10 -2.2		S	16	5:39 -0.6	11:46 25.7	18:10 -2.2
N	C	W	17	4:47 -0.4	10:55 24.7	17:11 -0.9	23:19 24.9	N	S	17	5:56 -1.2	12:06 26.0	18:26 -2.4	C	M	17	6:18 24.7	6:30 -0.6	12:38 25.7	E	M	17	6:18 24.7	6:30 -0.6	12:38 25.7
		Th	18	5:34 -1.1	11:40 25.4	18:00 -1.8			S	18	6:34 25.1	6:46 -1.1	12:55 25.9		Tu	18	1:10 24.5	7:20 -0.6	13:20 25.3		Tu	18	1:10 24.5	7:20 -0.6	13:20 25.3
C	E	F	19	0:06 25.4	6:20 -1.5	12:38 25.8	18:46 -2.2	C	M	19	1:25 24.8	7:38 -0.7	13:46 25.3	E	W	19	2:05 24.2	8:17 -0.2	14:24 24.6	E	W	19	2:05 24.2	8:17 -0.2	14:24 24.6
		S	20	0:54 25.4	7:06 -1.8	13:15 25.7	19:35 -2.1		Tu	20	2:20 24.1	8:32 0.0	14:40 24.5		Th	20	2:56 23.6	9:14 0.5	15:20 23.8		Th	20	2:56 23.6	9:14 0.5	15:20 23.8
E	N	S	21	1:42 24.9	7:54 -0.8	14:08 25.2	20:34 -1.5	E	W	21	3:15 23.3	9:27 0.9	15:36 23.4	N	F	21	3:54 22.9	10:10 1.3	16:18 21.7	N	F	21	3:54 22.9	10:10 1.3	16:18 21.7
		M	22	2:35 24.1	8:47 0.1	14:55 24.8	21:20 -0.7		Th	22	4:15 22.4	10:28 1.8	16:40 22.4		S	22	4:32 22.2	11:10 2.0	17:20 21.7		S	22	4:32 22.2	11:10 2.0	17:20 21.7
N	C	Tu	23	3:30 23.1	9:42 1.1	15:54 23.2	22:15 0.4	N	F	23	5:17 21.8	11:32 2.4	17:43 21.6	C	M	23	5:50 21.7	12:10 2.5	18:30 21.0	E	M	23	5:50 21.7	12:10 2.5	18:30 21.0
		W	24	4:30 22.0	10:44 2.2	16:56 22.2	23:20 1.8		S	24	6:06 1.7	12:41 21.3	18:50 2.6		W	24	6:38 2.4	6:50 21.3	19:15 2.9		W	24	6:38 2.4	6:50 21.3	19:15 2.9
C	E	Th	25	5:35 21.3	11:50 2.9	18:04 21.4		C	S	25	1:10 2.2	7:25 21.3	13:45 2.7	E	Tu	25	1:38 3.0	7:48 21.1	14:12 3.0	E	Tu	25	1:38 3.0	7:48 21.1	14:12 3.0
		F	26	0:28 2.0	6:44 20.9	13:00 3.0	19:12 21.1		M	26	2:10 2.3	8:22 21.4	14:44 2.4		W	26	2:35 3.3	8:43 21.0	15:07 3.0		W	26	2:35 3.3	8:43 21.0	15:07 3.0
E	N	S	27	1:26 2.2	7:50 21.0	14:10 2.8	20:20 21.3	E	Tu	27	3:07 2.3	9:16 21.7	15:40 2.1	N	Th	27	3:28 3.3	9:34 21.1	15:37 2.8	N	Th	27	3:28 3.3	9:34 21.1	15:37 2.8
		S	28	2:39 2.0	8:50 21.5	15:10 2.2	21:18 21.6		W	28	4:00 2.3	10:05 21.9	16:27 1.9		F	28	4:15 3.3	10:15 21.1	16:40 2.6		F	28	4:15 3.3	10:15 21.1	16:40 2.6
N	C	M	29	2:36 1.7	9:45 22.0	16:05 1.6	22:10 21.9	N	Th	29	4:44 2.3	10:50 21.9	17:10 1.8	C	S	29	4:58 3.4	11:00 21.2	17:22 2.5	E	S	29	4:58 3.4	11:00 21.2	17:22 2.5
		Tu	30	4:26 1.4	10:32 22.4	16:52 1.1	23:00 22.0		F	30	5:25 2.5	11:30 21.8	17:50 1.9		M	30	5:35 3.5	11:35 21.2	17:55 2.8		M	30	5:35 3.5	11:35 21.2	17:55 2.8
C	E	W	31	5:12 1.4	11:16 22.6	17:35 1.0	23:44 21.9	C						E			6:00 20.2	6:08 3.5	18:30 21.2	E			6:00 20.2	6:08 3.5	18:30 21.2

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 11.9 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Intercolonial Standard, 60th meridian W.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾☽, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										MARCH.									
Moon.	Day of Mo.	Time and Height of High and Low Water.				Moon.	Day of Mo.	Time and Height of High and Low Water.				Moon.	Day of Mo.	Time and Height of High and Low Water.				Moon.	Day of Mo.
		Time	Height	Time	Height			Time	Height	Time	Height			Time	Height	Time	Height		
E	M 1	3:33	9:42	15:48	22:04	A	Th 1	4:25	10:44	16:50	22:56	A	Th 1	2:58	9:10	15:15	21:20	A	Th 1
		8.5	0.7	8.3	0.8			8.1	1.2	7.8	1.4			8.3	0.8	7.6	1.2		
D	Tu 2	4:28	10:39	16:45	22:57	S	F 2	5:15	11:37	17:48	23:00	D	F 2	3:35	9:54	16:02	22:06	D	F 2
		8.3	1.1	7.8	0.8			7.9	1.4	7.0	1.7			8.1	1.0	7.3	1.6		
A	W 3	5:17	11:35	17:43	23:49	S	S 3	6:05	12:30	18:45	23:55	D	S 3	4:32	10:44	16:50	22:55	D	S 3
		8.1	1.3	7.5	1.1			7.8	1.3	6.9	1.7			7.9	1.2	7.1	1.8		
N	Th 4	6:09	12:32	18:42	23:58	M	S 4	6:42	13:26	19:40	24:00	N	S 4	5:15	11:40	17:52	23:58	N	S 4
		8.1	1.3	7.5	1.1			1.8	7.9	1.1	7.0			7.8	1.2	7.0	1.9		
S	F 5	6:42	13:26	19:38	23:58	N	M 5	1:35	7:50	14:15	20:32	M	M 5	6:10	12:36	18:50	23:58	M	M 5
		1.4	8.0	1.2	7.2			1.7	8.2	0.7	7.3			7.9	1.0	7.1	1.9		
O	S 6	1:34	7:48	14:14	20:28	W	Tu 6	2:27	8:37	15:05	21:19	W	Tu 6	0:52	7:06	13:34	19:50	W	Tu 6
		1.4	8.1	1.0	7.3			1.4	8.6	0.8	7.7			1.7	8.1	0.6	7.5		
P	S 7	2:22	8:32	14:58	21:14	Th	W 7	3:15	9:25	15:47	22:08	Th	W 7	1:50	8:02	14:24	20:42	Th	W 7
		1.4	8.3	0.8	7.4			1.1	9.0	-0.8	8.2			1.4	8.5	0.1	8.0		
E	M 8	3:06	9:15	15:39	21:55	F	Th 8	4:00	10:10	16:30	22:44	F	Th 8	2:42	9:00	15:15	21:30	F	Th 8
		1.3	8.6	0.8	7.6			0.7	9.4	-0.8	8.7			0.9	9.0	-0.4	8.6		
D	Tu 9	3:48	9:55	16:18	22:33	S	F 9	4:42	10:54	17:14	23:25	S	F 9	3:32	9:44	16:00	22:15	S	F 9
		1.2	8.9	-0.2	8.0			0.2	9.7	-1.1	9.2			0.8	9.5	-0.9	9.2		
A	W 10	4:26	10:36	16:57	23:11	M	S 10	5:25	11:37	17:55	23:55	A	S 10	4:18	10:30	16:47	22:58	A	S 10
		1.0	9.2	-0.5	8.3			-0.2	10.0	-1.4	9.4			-0.3	10.0	-1.3	9.8		
N	Th 11	5:04	11:16	17:36	23:51	E	Th 11	6:08	12:10	18:40	24:00	E	Th 11	5:04	11:15	17:35	23:42	E	Th 11
		0.7	9.4	-0.8	8.6			9.5	-0.5	10.1	-1.4			-0.8	10.3	-1.5	10.2		
S	F 12	5:44	11:57	18:18	24:11	P	M 12	6:50	12:55	19:22	24:11	P	M 12	5:50	12:02	18:14	23:14	P	M 12
		0.4	9.6	-1.0	8.6			9.7	-0.8	10.0	-1.8			-1.2	10.4	-1.5	10.2		
O	S 13	6:31	12:37	19:00	24:11	W	Tu 13	1:35	7:45	13:54	20:10	W	Tu 13	0:25	6:36	12:50	19:00	W	Tu 13
		8.9	0.2	9.6	-1.1			9.9	-0.8	9.8	-1.0			10.4	-1.4	10.3	-1.3		
P	S 14	1:18	7:12	13:24	19:45	Th	W 14	2:23	8:34	14:46	21:00	Th	W 14	1:10	7:24	13:34	19:46	Th	W 14
		9.1	0.0	9.6	-1.0			9.7	-0.7	9.4	-0.5			10.3	-1.4	10.0	-1.0		
E	M 15	1:58	8:01	14:12	20:32	F	Th 15	3:14	9:29	15:40	21:50	F	Th 15	2:00	8:15	14:30	20:37	F	Th 15
		9.2	-0.1	9.4	-0.8			9.5	-0.4	8.9	0.0			10.1	-1.1	9.5	-0.4		
D	Tu 16	2:47	8:58	15:08	21:21	S	F 16	4:08	10:17	16:28	22:50	S	F 16	2:50	9:10	15:20	21:34	S	F 16
		9.3	-0.1	9.1	-0.4			9.2	-0.1	8.4	0.6			9.7	-0.8	8.9	0.2		
A	W 17	3:38	9:49	16:00	22:14	M	S 17	5:10	11:34	17:50	23:58	A	S 17	3:48	10:11	16:28	22:35	A	S 17
		9.2	0.0	8.8	0.0			9.0	0.1	7.9	0.9			9.8	-0.3	8.3	0.7		
N	Th 18	4:32	10:48	17:00	23:11	E	S 18	6:12	12:44	19:06	24:11	E	S 18	4:50	11:18	17:35	23:44	E	S 18
		9.1	0.1	8.5	0.3			8.9	0.2	7.8	1.1			8.9	0.0	7.9	1.1		
S	F 19	5:20	11:51	18:07	24:11	P	M 19	1:05	7:20	13:30	20:14	P	M 19	5:57	12:26	18:51	23:51	P	M 19
		9.0	0.1	8.2	1.1			1.0	8.9	0.1	7.9			8.7	0.8	7.6	1.1		
O	S 20	6:13	12:51	19:14	24:11	W	Tu 20	2:11	8:24	14:56	21:16	W	Tu 20	0:55	7:06	13:37	20:00	W	Tu 20
		0.6	9.1	0.0	8.1			0.9	9.1	-0.2	8.2			1.1	8.6	0.2	7.9		
P	S 21	1:17	7:38	14:01	20:20	Th	W 21	3:14	9:24	15:49	22:10	Th	W 21	2:04	8:14	14:40	21:00	Th	W 21
		0.7	9.2	-0.2	8.2			0.6	9.4	-0.5	8.6			0.9	8.8	0.0	8.2		
E	M 22	2:30	8:34	15:08	21:23	F	Th 22	4:08	10:17	16:40	22:57	F	Th 22	3:02	9:15	15:34	21:52	F	Th 22
		0.6	9.5	-0.5	8.4			8.3	9.5	-0.7	8.8			0.6	9.0	-0.2	8.6		
D	Tu 23	3:19	9:31	15:59	22:20	S	F 23	4:57	11:05	17:25	23:40	S	F 23	3:56	10:05	16:23	22:35	S	F 23
		0.4	9.8	-0.9	8.6			0.1	9.6	-0.7	9.0			0.3	9.1	-0.3	8.8		
A	W 24	4:16	10:26	16:50	23:10	M	S 24	5:42	11:50	18:05	24:11	A	S 24	4:42	10:52	17:04	23:15	A	S 24
		0.2	9.9	-1.1	8.9			0.0	9.5	-0.7	9.0			0.1	9.1	-0.3	9.0		
N	Th 25	5:08	11:16	17:38	23:58	E	S 25	6:30	12:45	18:45	24:11	E	S 25	5:22	11:34	17:40	23:51	E	S 25
		0.0	10.0	-1.2	9.0			9.0	0.0	9.2	-0.4			0.0	9.0	-0.1	9.0		
S	F 26	5:56	12:04	18:25	24:11	P	M 26	0:08	7:05	13:14	19:24	P	M 26	6:00	12:10	18:16	23:51	P	M 26
		0.0	9.9	-1.1	8.9			9.0	0.1	8.9	-0.1			0.0	8.8	0.1	8.8		
O	S 27	0:43	6:44	12:51	19:09	W	Tu 27	1:34	7:35	13:52	20:02	W	Tu 27	0:25	6:36	12:47	18:50	W	Tu 27
		9.0	0.1	9.6	-0.8			8.8	0.3	8.5	0.3			8.9	0.1	8.5	0.4		
P	S 28	1:26	7:30	13:37	19:53	Th	W 28	2:12	8:25	14:34	20:40	Th	W 28	1:00	7:10	13:24	19:25	Th	W 28
		8.9	0.2	9.2	-0.5			8.6	0.6	8.1	0.8			8.7	0.3	8.2	0.7		
E	M 29	2:09	8:16	14:23	20:33	F	Th 29	3:04	9:16	15:25	21:44	F	Th 29	1:54	7:48	13:58	20:00	F	Th 29
		8.8	0.4	8.7	0.0			8.5	0.4	8.0	0.8			8.5	0.4	7.9	1.0		
D	Tu 30	2:52	9:04	15:10	21:22	S	F 30	3:56	10:16	16:25	22:44	S	F 30	2:10	8:28	14:37	20:36	S	F 30
		8.6	0.7	8.2	0.5			8.3	0.6	7.6	1.3			8.3	0.6	7.6	1.3		
A	W 31	3:37	9:52	16:00	22:08	M	S 31	4:57	11:05	17:25	23:40	A	S 31	3:56	10:05	16:23	22:35	A	S 31
		8.3	1.0	7.8	1.0			0.1	9.6	-0.7	9.0			0.3	9.1	-0.3	8.8		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12

APRIL.					MAY.					JUNE.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
N	S 1	3:37	10:00	16:11	22:11	D	Tu 1	3:58	10:18	16:35	22:36		F 1	5:17	11:36	17:55	...
		8.0	0.8	7.8	1.7			8.1	0.4	7.8	1.4			8.5	0.1	8.9	...
	M 2	4:29	10:54	17:09	23:10		W 2	4:49	11:14	17:32	23:38	E	S 2	0:06	6:18	12:33	18:51
		7.9	0.7	7.8	1.7			8.1	0.4	8.0	1.1			0.3	8.6	0.0	9.2
	Tu 3	5:27	11:52	18:09	...		Th 3	5:50	12:12	18:30	...		S 3	1:08	7:20	13:30	19:46
		7.9	0.7	7.5	...			8.3	0.3	8.4	...			-0.2	8.9	-0.2	9.6
	W 4	0:13	6:27	12:51	19:08		F 4	0:40	6:51	13:09	19:26		M 4	2:06	8:18	14:25	20:40
		1.5	8.2	0.4	7.9			0.7	8.6	0.0	8.9			-0.7	9.1	-0.3	10.0
	Th 5	1:13	7:26	13:47	20:04	E	S 5	1:38	7:49	14:03	20:19		Tu 5	3:01	9:16	15:20	21:38
		1.1	8.5	0.0	8.4			0.1	9.0	-0.3	9.4			-1.2	9.3	-0.5	10.4
	F 6	2:09	8:22	14:40	20:55		S 6	2:34	8:46	14:56	21:10	P	W 6	3:55	10:11	16:13	22:25
		0.5	9.0	-0.4	9.1			-0.6	9.5	-0.6	9.9			-1.6	9.5	-0.6	10.6
	S 7	3:02	9:15	15:29	21:48		M 7	3:25	9:40	15:47	21:59		Th 7	4:48	11:05	17:05	23:17
		-0.2	9.5	-0.9	9.7			-1.2	9.8	-0.9	10.4			-1.9	9.6	-0.6	10.7
E	S 8	3:52	10:05	16:17	22:29		Tu 8	4:16	10:32	16:37	22:48	S	F 8	5:41	11:58	17:58	...
		-0.8	10.0	-1.2	10.2			-1.7	10.0	-1.1	10.7			-1.9	9.6	-0.5	...
O	M 9	4:40	10:58	17:03	23:14	P	W 9	5:07	11:23	17:26	23:37		S 9	0:10	6:38	12:52	18:52
		-1.4	10.3	-1.4	10.5			-2.0	10.1	-1.0	10.8			10.6	-1.9	9.5	-0.3
P	Tu 10	5:27	11:42	17:49	23:59		Th 10	5:57	12:14	18:16	...		S 10	1:02	7:27	13:46	19:47
		-1.8	10.4	-1.4	10.6			-2.1	9.9	-0.8	...			10.3	-1.6	9.2	0.0
	W 11	6:16	12:31	18:36	...	S	F 11	0:22	6:49	13:06	19:07		M 11	1:57	8:22	14:42	20:46
		-1.9	10.2	-1.2	...			10.6	-1.9	9.6	-0.5			9.9	-1.2	9.0	0.3
	Th 12	0:48	7:06	13:21	19:25		S 12	1:19	7:42	14:01	20:08		Tu 12	2:54	9:18	15:39	21:47
		10.5	-1.8	9.9	-0.8			10.3	-1.6	9.3	-0.1			9.4	-0.7	8.7	0.5
	F 13	1:38	7:58	14:15	20:19		S 13	2:14	8:39	14:59	21:02	C	W 13	3:54	10:15	16:37	22:18
		10.3	-1.5	9.4	-0.3			9.9	-1.2	8.9	0.3			8.9	-0.3	8.6	0.7
S	S 14	2:31	8:55	15:13	21:18		M 14	3:13	9:38	16:01	22:07		Th 14	4:56	11:13	17:35	23:50
		9.8	-1.0	8.8	0.3			9.4	-0.7	8.5	0.7			8.4	0.2	8.5	0.8
C	S 15	3:29	9:56	16:17	22:21	C	Tu 15	4:16	10:41	17:06	23:14	E	F 15	5:59	12:11	18:30	...
		9.3	-0.5	8.8	0.7			8.9	-0.2	8.3	0.9			8.1	0.5	8.5	...
	M 16	4:34	11:01	17:25	23:31		W 16	5:23	11:46	18:10	...		S 16	0:51	7:00	13:16	19:24
		8.9	-0.1	8.0	1.0			8.5	0.1	8.3	...			0.8	8.0	0.8	8.5
	Tu 17	5:42	12:10	18:35	...		Th 17	0:21	6:30	12:48	19:09		S 17	1:47	7:59	13:59	20:13
		8.6	0.2	8.0	...			0.9	8.3	0.3	8.4			0.8	7.8	1.0	8.5
	W 18	0:43	6:52	13:16	19:40	E	F 18	1:24	7:33	13:45	20:03	A	M 18	2:38	8:52	14:48	20:58
		1.0	8.5	0.2	8.2			0.8	8.2	0.4	8.5			0.7	7.7	1.1	8.5
	Th 19	1:48	7:58	14:16	20:36		S 19	2:19	8:30	14:38	20:51		Tu 19	3:28	9:40	15:32	21:38
		0.8	8.5	0.2	8.4			0.6	8.3	0.6	8.7			0.6	7.6	1.2	8.6
	F 20	2:45	8:55	15:09	21:19		S 20	3:10	9:31	15:24	21:35		W 20	4:08	10:20	16:11	22:15
		0.5	8.6	0.1	8.7			0.4	8.2	0.6	8.7			0.4	7.6	1.3	8.6
E	S 21	3:36	9:41	15:56	22:08		M 21	3:54	10:09	16:06	22:14	●	Th 21	4:39	10:58	16:47	22:52
		0.3	8.7	0.1	8.9			0.3	8.1	0.8	8.7			0.3	7.6	1.3	8.7
	S 22	4:20	10:32	16:37	22:46	A	Tu 22	4:33	10:50	16:43	22:48	N	F 22	5:13	11:30	17:20	23:28
		0.1	8.7	0.3	8.9			0.2	8.0	0.9	8.7			0.1	7.7	1.3	8.8
●	M 23	5:00	11:13	17:14	23:21	●	W 23	5:09	11:24	17:17	23:22		S 23	5:50	12:03	18:54	...
		0.1	8.5	0.5	8.8			0.2	7.9	1.1	8.7			-0.1	7.9	1.2	...
	Tu 24	5:36	11:49	17:47	23:58		Th 24	6:41	11:56	17:48	23:56		S 24	0:04	6:27	12:40	18:32
		0.1	8.3	0.7	8.7			0.2	7.8	1.2	8.6			8.8	-0.3	8.1	1.1
A	W 25	6:09	12:22	18:18	...		F 25	6:15	12:28	18:20	...		M 25	0:44	7:06	13:19	19:13
		0.2	8.1	0.9	...			0.1	7.8	1.3	...			8.9	-0.4	8.3	0.9
	Th 26	0:26	6:43	12:54	18:50	N	S 26	0:29	6:51	13:04	18:54		Tu 26	1:26	7:48	14:01	19:58
		8.6	0.3	7.9	1.1			8.6	0.0	7.8	1.3			8.9	-0.4	8.5	0.7
	F 27	0:59	7:18	13:29	19:23		S 27	1:07	7:29	13:42	19:33		W 27	2:10	8:33	14:48	20:49
		8.5	0.3	7.8	1.3			8.6	0.0	7.9	1.3			8.8	-0.3	8.6	0.6
	S 28	1:35	7:56	14:07	20:00		M 28	1:48	8:11	14:21	20:19		Th 28	3:00	9:22	15:38	21:44
		8.4	0.3	7.7	1.4			8.5	0.0	8.0	1.2			8.7	-0.2	8.8	0.5
N	S 29	2:15	8:38	14:50	20:45		Tu 29	2:33	8:58	15:14	21:11	D	F 29	3:53	10:12	16:30	22:22
		8.2	0.4	7.7	1.5			8.4	0.0	8.1	1.1			8.6	-0.1	9.0	0.3
	M 30	3:01	9:26	15:40	21:37		W 30	3:24	9:48	16:05	22:08		S 30	4:50	11:06	17:25	23:41
		8.1	0.4	7.7	1.5			8.4	0.1	8.3	0.9			8.6	0.1	9.1	0.1
						D	Th 31	4:19	10:41	17:00	23:06						
								8.4	0.1	8.5	0.7						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										AUGUST.																				
Moon.	Day of—	W.	Mo.	Time and Height of High and Low Water.				Moon.	Day of—	W.	Mo.	Time and Height of High and Low Water.				Moon.	Day of—	W.	Mo.											
S	1	5:56	12:05	18:24	3.6	0.1	9.3	P	W	1	1:26	7:44	13:45	20:00	0.3	8.3	0.5	9.6	S	1	3:16	9:36	15:34	21:46	0.5	8.6	0.2	9.4		
M	2	0:43	6:57	13:08	-0.2	8.6	0.1	9.6	S	Th	2	2:29	8:46	14:45	20:59	-0.6	8.4	0.3	9.6	○	S	2	4:07	10:25	16:28	22:37	-0.7	8.9	-0.1	9.7
Tu	3	1:43	7:58	14:01	-0.6	8.7	0.0	9.9	F	3	3:25	9:45	15:41	21:56	-0.9	8.7	0.1	10.0	M	3	4:55	11:10	17:14	23:25	-0.8	9.1	-0.2	9.6		
W	4	2:42	8:58	14:56	-1.0	8.9	-0.1	10.2	○	S	4	4:19	10:38	16:36	22:48	-1.1	9.0	-0.1	10.1	Tu	4	5:40	11:58	17:58	24:11	-0.7	9.2	-0.2	9.6	
Th	5	3:38	9:51	15:54	-1.3	9.1	-0.2	10.4	S	5	5:10	11:28	17:29	23:39	-1.2	9.1	-0.2	10.1	E	W	5	6:09	6:22	12:34	18:41	9.4	-0.6	9.2	-0.2	
F	6	4:32	10:30	16:48	-1.6	9.2	-0.3	10.6	M	6	5:59	12:16	18:18	24:30	-1.2	9.2	-0.1	10.1	Th	6	6:54	7:02	13:15	19:25	9.1	-0.2	9.0	0.1		
S	7	5:25	11:43	17:42	-1.6	9.2	-0.3	10.4	Tu	7	6:27	6:47	13:08	19:07	9.8	-1.0	9.1	-0.1	10.1	F	7	1:39	7:42	13:55	20:08	8.7	0.2	8.7	0.4	
S	8	6:17	12:35	18:35	-1.5	9.2	-0.1	10.1	E	W	8	1:16	7:32	13:48	19:56	9.4	-0.6	9.0	0.1	S	8	2:22	8:25	14:38	20:54	8.2	0.8	8.4	0.7	
M	9	0:45	7:06	13:27	10.1	-1.3	9.1	0.0	Th	9	2:05	8:20	14:35	20:45	8.9	-0.2	8.8	0.4	A	S	9	3:07	9:06	15:23	21:44	7.7	1.3	8.1	1.0	
Tu	10	1:26	7:59	14:18	9.6	-0.9	9.0	-0.2	F	10	2:56	9:05	15:22	21:37	8.5	0.4	8.5	0.8	○	M	10	3:55	9:58	16:12	22:35	7.3	1.7	7.8	1.2	
W	11	2:33	8:52	15:10	9.1	-0.5	8.8	0.5	○	S	11	3:47	9:56	16:10	22:30	8.0	0.9	8.3	1.0	Tu	11	4:48	10:48	17:04	23:20	7.0	1.9	7.7	1.2	
Th	12	3:38	9:44	16:03	8.6	0.0	8.6	0.7	S	12	4:41	10:47	17:02	23:25	7.5	1.3	8.1	1.2	N	W	12	5:46	11:45	17:59	24:11	6.9	2.0	7.6	1.3	
F	13	4:35	10:38	16:56	8.2	0.5	8.5	0.9	A	M	13	5:37	11:38	17:55	24:11	7.2	1.6	7.9	1.2	Th	13	6:27	6:42	12:41	18:55	1.1	7.1	1.8	8.0	
S	14	5:25	11:32	17:50	7.8	0.9	8.3	1.1	Tu	14	6:21	6:35	12:32	18:47	6.2	7.0	1.7	8.0	F	14	1:20	7:36	13:36	19:47	0.8	7.4	1.5	8.3		
S	15	6:13	6:24	12:25	1.0	7.5	1.2	8.2	W	15	1:13	7:30	13:27	19:38	1.1	7.1	1.7	8.1	S	15	2:08	8:25	14:27	20:37	0.4	7.9	1.0	8.8		
M	16	1:09	7:22	13:13	1.0	7.8	1.3	8.2	N	Th	16	2:08	8:20	14:14	20:24	0.8	7.3	1.6	8.4	S	16	2:55	9:10	15:15	21:24	-0.1	8.5	0.4	9.3	
Tu	17	1:59	8:15	14:07	0.9	7.3	1.4	8.4	F	17	2:49	9:05	15:01	21:09	0.5	7.6	1.2	8.8	M	17	3:40	9:58	15:58	22:10	-0.6	9.1	-0.1	9.7		
W	18	2:44	9:02	14:52	0.7	7.4	1.4	8.5	S	18	3:30	9:46	15:43	21:51	0.0	8.0	0.9	9.1	●	Tu	18	4:23	10:35	16:40	22:53	-1.0	9.6	-0.7	10.0	
Th	19	3:25	9:43	15:33	0.5	7.5	1.3	8.7	●	S	19	4:13	10:26	16:28	22:35	-0.4	8.5	0.5	9.4	E	W	19	5:05	11:17	17:25	23:37	-1.2	10.0	-1.1	10.2
F	20	4:08	10:20	16:12	0.1	7.7	1.2	8.9	M	20	4:51	11:05	17:05	23:16	-0.8	8.9	0.1	9.7	Th	20	5:49	11:58	18:10	24:24	-1.3	10.3	-1.4	10.5		
S	21	4:42	10:57	16:50	-0.1	8.0	1.0	9.1	Tu	21	5:32	11:45	17:48	24:01	-1.0	9.3	-0.3	10.0	P	F	21	6:23	6:32	12:44	18:57	10.2	-1.2	10.2	-1.3	
S	22	5:20	11:34	17:28	-0.4	8.3	0.8	9.2	W	22	6:00	6:15	12:36	18:32	9.8	-1.1	9.6	-0.6	S	22	1:10	7:19	13:30	19:47	9.9	-0.8	10.0	-1.2		
M	23	5:59	12:12	18:08	-0.6	8.6	0.5	9.5	E	Th	23	6:45	6:58	13:10	19:19	9.8	-1.0	9.7	-0.7	S	23	2:01	8:08	14:22	20:40	9.5	-0.4	9.7	-0.8	
Tu	24	6:20	6:40	12:53	9.3	-0.7	8.8	0.3	F	24	1:30	7:43	13:56	20:09	9.7	-0.8	9.7	-0.6	M	24	2:55	9:02	15:17	21:49	8.9	0.1	9.4	-0.5		
W	25	1:08	7:28	13:36	9.3	-0.7	9.0	0.1	S	25	2:20	8:30	14:45	21:02	8.4	-0.4	9.5	-0.4	○	Tu	25	3:58	10:02	16:18	22:45	8.4	0.6	9.0	-0.1	
Th	26	1:50	8:09	14:23	9.2	-0.6	9.2	0.0	○	S	26	3:13	9:22	15:40	21:56	9.0	0.0	9.3	-0.3	W	26	5:06	11:10	17:25	23:53	8.0	1.0	8.8	0.1	
F	27	2:39	8:56	15:12	9.0	-0.4	9.2	0.0	P	M	27	4:11	10:19	16:37	23:01	8.5	0.5	9.1	-0.1	Th	27	6:16	12:20	18:33	24:44	7.9	1.0	8.7	0.1	
S	28	3:38	9:47	16:04	8.9	-0.1	9.2	0.0	Tu	28	5:17	11:21	17:40	24:01	8.1	0.8	9.0	0.0	F	28	7:27	7:37	13:30	19:41	0.1	8.1	0.8	8.9		
S	29	4:30	10:42	17:00	8.6	0.2	9.1	0.0	S	W	29	6:09	6:26	12:30	18:46	0.1	7.9	0.9	9.0	S	29	2:06	8:26	14:32	20:42	-0.1	8.4	0.5	9.1	
M	30	5:23	11:40	18:00	8.3	0.5	9.2	0.0	Th	30	1:15	7:36	13:25	19:50	0.0	8.0	0.8	9.2	S	30	3:02	9:20	15:25	21:36	-0.3	8.7	0.2	9.3		
Tu	31	6:23	6:36	12:42	-0.1	8.2	0.6	9.3	F	31	2:18	8:38	14:39	20:50	-0.2	8.3	0.5	9.4												

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ○, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



O	E	M. 1	3:53	10:06	16:15	22:25	Th 1	4:54	11:00	17:17	23:32	A	S	1	5:02	11:07	17:29	23:45
		Tu 2	4:36	10:50	17:00	23:10	F 2	5:29	11:35	17:52	23:57			2	5:35	11:41	18:01	23:59
A	N	W 3	5:17	11:27	17:38	23:50	S 3	6:06	12:02	18:08	24:23	N	M	3	6:16	12:05	18:15	24:27
		Th 4	5:55	12:05	18:17	24:01	A S 4	6:41	12:35	18:42	24:52			Tu 4	6:49	12:40	18:52	24:56
C	W	F 5	6:30	12:40	18:55	24:35	M 5	7:15	13:08	19:20	25:10	C	S	5	7:25	13:15	19:30	25:20
		S 6	7:10	13:17	19:35	25:05	N Tu 6	7:55	13:45	19:55	25:40			6	7:55	13:45	19:55	25:40
E	P	S 7	7:45	13:55	20:15	25:40	W 7	8:25	14:15	20:25	26:10	E	M	7	8:35	14:25	20:35	26:20
		M 8	8:25	14:35	20:55	26:15	Th 8	8:55	15:05	20:55	26:40			8	9:05	15:15	20:45	26:50
N	C	Tu 9	9:12	15:25	21:45	27:05	C F 9	9:42	15:55	21:35	27:10	N	S	9	9:52	16:05	21:45	27:20
		W 10	9:52	16:05	22:25	27:45	S 10	10:22	16:45	22:15	27:50			10	10:12	16:55	22:55	28:00
P	D	Th 11	10:30	16:45	23:05	28:25	S 11	11:02	17:25	22:55	28:30	P	M	11	10:52	17:15	23:45	28:40
		F 12	11:10	17:25	23:45	29:05	M 12	11:42	18:05	23:35	29:10			12	11:32	18:05	24:25	29:20
D	E	S 13	11:50	18:05	24:25	29:45	E Tu 13	12:22	18:45	24:15	29:50	D	S	13	12:12	18:55	25:05	29:60
		S 14	12:30	18:45	25:05	30:25	W 14	13:02	19:25	25:05	30:30			14	12:52	19:45	25:45	30:10
E	P	M 15	13:10	19:25	25:45	31:05	Th 15	13:42	20:05	25:45	31:10	E	M	15	13:32	20:15	26:25	31:20
		Tu 16	13:50	20:05	26:25	31:45	F 16	14:22	20:45	26:25	31:50			16	14:12	21:05	27:05	31:30
P	D	W 17	14:30	20:45	27:05	32:25	S 17	15:02	21:25	27:05	32:30	P	S	17	14:52	21:45	27:45	32:40
		Th 18	15:10	21:25	27:45	33:05	S 18	15:42	22:05	27:45	33:10			18	15:32	22:25	28:25	33:20
D	E	F 19	15:50	22:05	28:25	33:45	S M 19	16:22	22:45	28:25	33:50	D	M	19	16:12	23:05	29:05	33:60
		S 20	16:30	22:45	29:05	34:25	Tu 20	17:02	23:25	29:05	34:30			20	16:52	23:45	29:45	34:10
E	P	S 21	17:10	23:25	29:45	35:05	W 21	17:42	24:05	29:45	35:10	E	S	21	17:32	24:25	30:25	35:20
		M 22	17:50	24:05	30:25	35:45	Th 22	18:22	24:45	30:25	35:50			22	18:12	25:05	31:05	36:00
P	D	Tu 23	18:30	24:45	31:05	36:25	F 23	19:02	25:25	31:05	36:30	P	M	23	18:52	25:45	31:45	36:40
		W 24	19:10	25:25	31:45	37:05	S 24	19:42	26:05	31:45	37:10			24	19:32	26:25	32:25	37:20
D	E	Th 25	19:50	26:05	32:25	37:45	S 25	20:22	26:45	32:25	37:50	D	S	25	20:12	27:05	33:05	38:00
		F 26	20:30	26:45	33:05	38:25	E M 26	21:02	27:25	33:05	38:30			26	20:52	27:45	33:45	38:40
E	P	S 27	21:10	27:25	33:45	39:05	Tu 27	21:42	28:05	33:45	39:10	E	M	27	21:32	28:25	34:25	39:20
		S 28	21:50	28:05	34:25	39:45	W 28	22:22	28:45	34:25	39:50			28	22:12	29:05	35:05	40:00
P	D	M 29	22:30	28:45	35:05	40:25	Th 29	23:02	29:25	35:05	40:30	P	S	29	22:52	29:45	35:45	40:40
		Tu 30	23:10	29:25	35:45	41:05	C F 30	23:42	30:05	35:45	41:10			30	23:32	30:25	36:25	41:20
D	E	W 31	23:50	30:05	36:25	41:45						D	M	31	24:12	31:05	37:05	42:00

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W. 0° is midnight, 12° is noon. All hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.), and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; ☾, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										ARCH.										
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
E D	M	1	3:50 9.1	10:00 0.7	16:07 9.1	22:25 0.2	D A	Th	1	4:47 8.7	11:04 1.1	17:08 8.0	23:22 1.2	D N	Th	1	3:18 9.0	9:34 0.7	15:38 8.4	21:52 1.1
	Tu	2	4:42 8.8	10:54 1.0	17:00 8.6	23:17 0.6		F	2	5:36 8.5	11:51 1.3	18:00 7.7			F	2	4:01 8.7	10:21 1.0	16:28 8.0	22:37 1.6
	W	3	5:33 8.7	11:50 1.2	17:55 8.2			S	3	6:12 1.5	12:43 8.6	18:52 1.3	18:52 7.6		S	3	4:49 8.5	11:12 1.1	17:18 7.7	23:21 1.7
A	Th	4	6:06 1.0	12:25 8.6	18:40 1.3	18:50 7.9	N	S	4	1:04 1.6	7:17 8.6	13:40 1.1	19:44 7.6	N	S	4	5:39 8.5	12:08 1.1	18:07 7.6	
	F	5	1:00 1.2	7:16 8.7	13:35 1.2	19:41 7.7		M	5	1:54 1.6	8:07 8.9	11:31 0.7	20:37 7.9		M	5	6:18 1.8	6:32 8.6	12:58 1.0	19:02 7.7
	S	6	1:50 1.3	8:05 8.8	14:25 1.1	21:18 7.8		Tu	6	2:44 1.4	8:57 9.3	15:20 0.3	21:26 8.3		Tu	6	1:14 1.6	7:27 8.8	13:52 0.7	19:58 8.0
N	S	7	2:35 1.8	8:49 9.0	15:11 0.7	21:18 7.9	O	W	7	3:32 1.0	9:44 9.7	16:08 -0.2	22:13 8.7	O	W	7	2:08 1.3	8:20 9.2	14:45 0.2	20:52 8.6
	M	8	3:22 1.2	9:38 9.8	15:54 1.1	22:01 8.2		Th	8	4:19 0.5	10:30 10.2	16:51 -0.7	22:57 9.2		Th	8	3:00 0.7	9:11 9.7	15:34 -0.2	21:41 9.1
	Tu	9	4:04 1.0	10:15 9.7	16:36 -0.2	22:42 8.5		F	9	5:08 0.1	11:15 10.5	17:35 -1.0	23:41 9.7		F	9	3:50 0.1	10:02 10.2	16:22 -0.7	22:19 9.7
O	W	10	4:47 0.8	10:57 10.0	17:18 -0.6	23:24 8.9	E	S	10	5:48 -0.3	12:00 10.8	18:20 -1.3		E	S	10	4:40 -0.4	10:52 10.6	17:08 -1.1	23:15 10.2
	Th	11	5:28 0.5	11:38 10.2	18:00 -0.8			S	11	6:25 10.1	12:47 -0.6	19:05 10.8	19:05 -1.3		S	11	5:27 -1.0	11:38 10.9	17:54 -1.3	
	F	12	6:06 9.2	12:22 0.8	18:43 10.4	19:43 -1.0		M	12	1:10 10.3	7:23 -0.7	13:38 10.7	19:50 -1.1		M	12	6:02 10.6	6:15 -1.3	12:25 11.0	18:40 -1.4
P	S	13	6:48 9.5	6:54 0.1	18:06 10.4	19:28 -1.0	C	Tu	13	1:56 10.3	8:12 -0.7	14:23 10.4	20:39 -0.8	C	Tu	13	6:48 10.9	7:04 -1.4	13:14 10.9	19:28 -1.2
	S	14	1:33 9.7	7:41 0.1	13:58 10.2	20:14 -0.8		W	14	2:43 10.2	9:04 -0.6	15:14 9.9	21:26 -0.4		W	14	1:37 10.9	7:55 -1.4	14:08 10.6	20:16 -0.9
	M	15	2:20 9.7	8:30 0.0	14:42 10.0	21:03 -0.6		Th	15	3:41 10.1	10:00 -0.3	16:06 9.4	22:33 0.1		Th	15	2:27 10.7	8:47 -1.1	14:55 10.0	21:08 -0.4
E	Tu	16	3:10 9.7	9:23 0.1	15:33 9.7	21:58 -0.3	C	F	16	4:37 9.9	11:00 -0.1	17:06 9.0	23:23 0.4	C	F	16	3:20 10.4	9:43 -0.8	15:51 9.6	22:08 0.1
	W	17	4:06 9.6	10:20 0.2	16:38 9.3	22:48 0.1		S	17	5:38 8.7	12:04 0.1	18:12 8.5			S	17	4:17 10.0	10:48 -0.3	16:52 9.0	23:04 0.6
	Th	18	5:00 9.6	11:20 0.2	17:28 8.9	23:44 0.3	S	S	18	6:24 0.7	6:42 9.6	13:08 0.2	19:20 8.4	S	S	18	5:16 9.7	11:45 0.0	17:57 8.5	
P	F	19	5:58 9.6	12:22 0.1	18:30 8.7			M	19	1:28 0.8	7:45 9.6	14:14 0.1	20:27 8.4		M	19	6:05 0.8	6:24 9.6	12:52 0.2	19:00 8.3
	S	20	6:45 0.5	7:00 9.7	13:26 0.0	19:34 8.6		Tu	20	2:32 0.6	8:48 9.7	15:15 -0.1	21:28 8.7		Tu	20	1:15 0.9	7:30 9.4	13:57 0.3	20:15 8.4
S	S	21	1:45 0.5	8:02 9.9	14:28 -0.2	20:38 8.7	●	W	21	3:32 0.4	9:47 10.1	16:10 -0.3	22:25 9.0	●	W	21	2:30 0.8	8:35 9.6	14:11 0.2	21:15 8.7
	M	22	2:45 0.4	9:01 10.2	15:28 -0.4	21:39 8.9		Th	22	4:26 0.1	10:38 10.3	16:59 -0.6	23:13 9.3		Th	22	3:20 0.6	9:32 9.6	15:02 0.0	22:07 9.0
	Tu	23	3:43 0.1	9:58 10.5	16:23 -0.8	22:36 9.2		F	23	5:16 -0.1	11:27 10.4	17:44 -0.7	23:56 9.5		F	23	4:13 0.2	10:28 9.8	16:38 -0.2	22:53 9.3
●	W	24	4:38 -0.1	10:52 10.7	17:15 -1.0	23:26 9.4	E	S	24	6:01 -0.2	12:12 10.3	18:26 -0.7		E	S	24	5:00 0.1	11:10 9.8	17:22 -0.3	23:38 9.5
	Th	25	5:29 -0.2	11:41 10.8	18:02 -1.1			S	25	6:38 9.6	6:45 -0.1	12:53 10.1	19:06 -0.8		S	25	5:43 -0.2	11:51 9.7	18:00 -0.3	
	F	26	6:14 9.6	6:18 -0.3	12:28 10.7	18:48 -1.1	M	M	26	1:17 9.6	7:25 -0.1	13:34 9.7	19:46 -0.2		M	26	6:11 9.6	6:22 -0.2	12:29 9.6	18:38 0.0
P	S	27	1:00 9.6	7:05 -0.2	13:15 10.4	19:33 -0.9		Tu	27	1:56 9.5	8:08 0.1	14:14 9.3	20:27 0.2	A	Tu	27	6:47 9.6	7:00 -0.1	13:08 9.3	19:15 0.3
	S	28	1:44 9.6	7:52 0.0	14:00 10.0	20:17 -0.6		W	28	2:36 9.8	8:50 0.4	14:50 8.8	21:08 0.6		W	28	1:11 9.4	7:39 0.1	13:43 9.0	19:52 0.6
E	M	29	2:28 9.4	8:38 0.8	14:45 9.5	21:08 -0.2	A	Th	29	3:18 9.2	9:27 0.3	15:21 8.7	22:00 1.0		Th	29	2:00 9.0	8:17 0.6	14:21 8.3	20:30 1.3
	Tu	30	3:13 9.2	9:25 0.6	15:31 9.0	21:48 0.3		F	30	4:06 9.0	10:15 0.5	16:01 8.3	22:51 1.3		F	30	2:38 9.0	8:58 0.6	15:01 8.3	21:11 1.3
	W	31	4:00 9.0	10:14 0.9	16:18 8.4	22:35 0.8		S	31	4:52 8.8	11:02 0.7	17:00 8.1	23:46 1.6		S	31	3:21 8.8	9:42 0.7	15:45 8.1	21:56 1.6

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	4:12	10:39	16:42	22:53	D	Tu	1	4:27	10:57	17:02	23:13	F	1	5:50	12:14	18:23	...	
			8.6	1.0	7.7	1.9				8.6	0.7	8.1	1.7			8.9	0.4	9.1	...	
	M	2	5:03	11:32	17:35	23:47		W	2	5:22	11:51	17:58	...	E	S	2	0:42	6:49	13:10	19:21
			8.5	1.0	7.7	1.9				8.6	0.7	8.8	...			0.5	9.0	0.2	9.5	
	Tu	3	5:58	12:26	18:30	...		Th	3	0:11	6:20	12:47	18:55		S	3	1:38	7:48	14:05	20:17
			8.5	0.9	7.9	...				1.8	8.8	0.5	8.7			0.0	9.2	0.0	10.0	
	W	4	0:43	6:54	13:20	19:28		F	4	1:10	7:18	13:42	19:51		M	4	2:37	8:45	14:59	21:12
			1.6	8.7	0.7	8.2				0.8	9.1	0.2	9.2			-0.5	9.5	-0.2	10.6	
	Th	5	1:40	7:52	14:15	20:23	E	S	5	2:07	8:16	14:36	20:45		Tu	5	3:33	9:42	15:53	22:05
			1.2	9.1	0.8	8.8				0.2	9.5	-0.1	9.8			-1.0	9.8	-0.5	11.0	
	F	6	2:37	8:47	15:06	21:16		S	6	3:06	9:12	15:28	21:38	P	W	6	4:27	10:37	16:45	22:58
			0.5	9.6	-0.2	9.4				-0.5	9.8	-0.5	10.4			-1.5	10.0	-0.7	11.3	
	S	7	3:30	9:40	15:58	22:06		M	7	3:56	10:05	16:18	22:28		Th	7	5:20	11:29	17:37	23:50
			-0.2	10.1	-0.6	10.1				-1.1	10.2	-0.8	11.0			-1.8	10.2	-0.7	11.5	
E	S	8	4:20	10:31	16:45	22:55	P	Tu	8	4:47	10:58	17:08	23:18	S	F	8	6:12	12:22	18:30	...
			-0.8	10.5	-1.0	10.7				-1.6	10.5	-1.0	11.3			-2.0	10.2	-0.7	...	
O	M	9	5:10	11:20	17:33	23:42		W	9	5:38	11:48	17:57	...		S	9	0:41	7:04	13:13	19:22
			-1.4	10.8	-1.2	11.0				-1.9	10.6	-1.0	...			11.4	-1.9	10.1	-0.5	
P	Tu	10	6:00	12:10	18:21	...		Th	10	0:09	6:30	12:40	18:48		S	10	1:35	7:57	14:05	20:16
			-1.7	10.9	-1.2	...				11.5	-2.0	10.5	-0.9			11.1	-1.6	9.9	-0.3	
	W	11	0:30	6:50	12:59	19:09	S	F	11	1:00	7:23	13:32	19:40		M	11	2:29	8:50	15:02	21:12
			11.2	-1.8	10.8	-1.1				11.4	-1.9	10.8	-0.6			10.7	-1.3	9.6	0.1	
	Th	12	1:20	7:41	13:49	20:00		S	12	1:52	8:16	14:26	20:35		Tu	12	3:23	9:45	16:00	22:10
			11.2	-1.7	10.5	-0.7				11.2	-1.6	9.9	-0.3			10.2	-0.8	9.8	0.4	
	F	13	2:11	8:33	14:43	20:53		S	13	2:48	9:11	15:22	21:33	C	W	13	4:20	10:41	16:56	23:10
			11.0	-1.4	10.0	-0.3				10.7	-1.2	9.5	0.1			9.7	-0.4	9.1	0.6	
S	S	14	3:05	9:30	15:40	21:51		M	14	3:45	10:08	16:22	22:33		Th	14	5:19	11:36	17:55	...
			10.6	-1.0	9.5	0.2				10.2	-0.8	9.2	0.5			9.2	0.0	9.0	...	
C	S	15	4:04	10:29	16:40	22:52	C	Tu	15	4:45	11:06	17:23	23:37	E	F	15	0:09	6:17	12:32	18:50
			10.1	-0.6	9.0	0.5				9.7	-0.4	8.9	0.7			0.7	8.8	0.4	9.0	
	M	16	5:05	11:31	17:45	23:57		W	16	5:47	12:08	18:26	...		S	16	1:08	7:15	13:27	19:43
			9.7	-0.2	8.7	0.8				9.8	0.0	8.8	...			0.8	8.5	0.6	9.1	
	Tu	17	6:09	12:35	18:52	...		Th	17	0:40	6:50	13:08	19:26		S	17	2:02	8:11	14:20	20:32
			9.4	0.1	8.6	...				0.8	9.0	0.2	8.9			0.8	8.8	0.8	9.2	
	W	18	1:03	7:35	13:37	19:55	E	F	18	1:40	7:50	14:08	20:20	A	M	18	2:52	9:02	15:05	21:18
			0.8	9.2	0.2	8.7				0.7	8.9	0.4	9.1			0.8	8.2	0.9	9.3	
	Th	19	2:05	8:17	14:35	20:52		S	19	2:36	8:45	14:55	21:10		Tu	19	3:38	9:48	15:48	22:00
			0.7	9.2	0.2	8.9				0.6	8.8	0.4	9.2			0.6	8.2	1.0	9.4	
	F	20	3:02	9:13	15:27	21:42		S	20	3:25	9:37	15:42	21:55		W	20	4:20	10:28	16:30	22:40
			0.4	9.3	0.1	9.2				0.4	8.7	0.5	9.4			0.4	8.2	1.0	9.5	
E	S	21	3:53	10:03	16:13	22:27		M	21	4:11	10:21	16:25	22:35	●	Th	21	5:00	11:08	17:10	23:17
			0.2	9.3	0.1	9.5				0.2	8.7	0.6	9.5			0.2	8.2	1.0	9.6	
	S	22	4:38	10:48	16:56	23:07	A	Tu	22	4:52	11:00	17:04	23:13	N	F	22	5:38	11:43	17:45	23:56
			0.0	9.3	0.1	9.6				0.1	8.6	0.7	9.5			-0.1	8.4	1.0	9.6	
●	M	23	5:20	11:28	17:35	23:44	●	W	23	5:30	11:37	17:40	23:48		S	23	6:17	12:21	18:25	...
			-0.1	9.2	0.2	9.6				0.0	8.5	0.9	9.5			-0.2	8.5	1.0	...	
	Tu	24	5:58	12:05	18:10	...		Th	24	6:07	12:12	18:17	...		S	24	0:35	6:57	13:00	19:04
			-0.1	9.0	0.4	...				-0.1	8.5	1.0	...			9.7	-0.3	8.7	1.0	
	W	25	0:20	6:35	12:42	18:48		F	25	0:25	6:45	12:50	18:53		M	25	1:15	7:40	13:42	19:48
			9.5	-0.1	8.8	0.7				9.5	-0.1	8.5	1.2			9.6	-0.3	8.8	1.0	
	Th	26	0:55	7:13	13:18	19:24	N	S	26	1:02	7:23	13:28	19:30		Tu	26	1:59	8:22	14:25	20:34
			9.4	0.0	8.7	1.0				9.4	0.0	8.5	1.3			9.5	-0.2	8.9	1.0	
	F	27	1:32	7:52	13:55	20:02		S	27	1:40	8:06	14:08	20:13		W	27	2:43	9:10	15:15	21:25
			9.2	0.2	8.5	1.3				9.2	0.1	8.5	1.4			9.4	-0.1	8.9	0.9	
	S	28	2:10	8:33	14:34	20:43		M	28	2:22	8:50	14:58	20:59		Th	28	3:38	9:59	16:05	22:18
			9.0	0.3	8.3	1.5				9.1	0.2	8.4	1.5			9.2	0.1	9.0	0.7	
N	S	29	2:52	9:18	15:20	21:27		Tu	29	3:07	9:36	15:40	21:48	●	F	29	4:27	10:50	17:00	23:15
			8.7	0.5	8.1	1.7				9.0	0.3	8.4	1.5			9.1	0.2	9.2	0.6	
	M	30	3:37	10:05	16:08	22:18		W	30	3:57	10:26	16:32	22:43		S	30	5:24	11:45	17:55	...
			8.7	0.7	8.0	1.8				8.9	0.4	8.5	1.3			8.9	0.8	9.4	...	
	Th	31	4:52	11:20	17:27	23:41	D			4:52	11:20	17:27	23:41							
			8.8	0.4	8.8	1.0				8.8	0.4	8.8	1.0							

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JULY.											
Day of—		Time and Height of Low Water.				Day of—		Time and Height of Low Water.			
Moon.	W. Mo.	Low Water.				Moon.	W. Mo.	Low Water.			
P O	S 1	0:18 0.3	6:27 9.0	12:44 0.3	18:56 9.8	P O	W 1	2:00 -0.2	8:07 8.8	14:18 0.3	20:38 10.3
	M 2	1:18 -0.1	7:25 9.1	13:40 0.2	19:56 10.2		S Th 2	2:59 -0.6	9:06 9.0	15:15 0.1	21:30 10.6
	Tu 3	2:17 -0.5	8:25 9.2	14:38 0.0	20:50 10.6		F 3	3:56 -0.8	10:06 9.2	16:11 -0.2	22:18 10.8
	W 4	3:14 -0.9	9:23 9.4	15:32 -0.2	21:46 10.9		O S 4	4:49 -1.1	11:00 9.6	17:05 -0.4	23:15 10.9
	Th 5	4:10 -1.8	10:20 9.6	16:27 -0.4	22:40 11.2		S 5	5:38 -1.2	11:49 9.7	17:55 -0.5	
	F 6	5:02 -1.5	11:12 9.8	17:20 -0.5	23:33 11.3		M 6	6:07 10.8	6:25 -1.2	12:37 9.8	18:46 -0.4
	S 7	5:55 -1.6	12:05 9.9	18:12 -0.5			Tu 7	6:55 10.6	7:12 -1.0	13:24 9.8	19:36 -0.8
	S 8	6:45 11.1	12:56 -1.5	19:06 9.8	19:06 -0.4		E W 8	7:44 10.2	8:00 -0.7	14:10 9.6	20:22 0.0
	M 9	7:36 10.9	13:46 -1.3	19:57 9.7	19:57 -0.2		Th 9	8:31 9.7	8:46 -0.3	14:59 9.4	21:12 0.3
	Tu 10	8:26 10.4	14:38 -1.0	20:50 9.5	20:50 0.1		F 10	9:19 9.2	9:35 0.2	15:46 0.7	22:02 0.7
E C	W 11	9:09 9.9	15:30 -0.6	21:44 9.3	21:44 0.4	C S 11	10:08 8.6	10:24 0.7	16:35 8.9	22:55 1.0	
	Th 12	9:54 9.4	16:25 -0.1	22:39 9.1	22:39 0.7	S 12	10:50 8.1	11:11 1.1	17:27 8.7	23:46 1.2	
	F 13	10:46 8.8	17:18 0.4	23:35 9.0	23:35 0.9	A M 13	11:38 7.8	11:56 1.4	18:17 8.6		
	S 14	11:36 8.4	18:10 0.8			Tu 14	12:26 1.2	12:45 7.6	18:55 1.6	19:08 8.7	
	S 15	12:22 1.1	19:02 8.0	19:02 1.0	19:02 8.8	W 15	13:14 1.1	13:32 7.6	19:45 1.5	19:58 8.9	
	M 16	1:12 1.1	19:52 7.8	19:52 1.2	19:52 8.9	N Th 16	14:02 0.8	14:20 7.8	20:35 1.8	20:45 9.2	
	Tu 17	2:03 1.0	20:37 7.8	20:37 1.8	20:37 9.1	F 17	14:50 0.5	15:08 8.1	21:21 1.0	21:32 9.5	
	W 18	2:50 0.8	21:21 7.8	21:21 1.2	21:21 9.3	S 18	15:38 0.0	15:56 8.5	22:07 0.7	22:15 9.9	
	Th 19	3:42 0.4	22:05 8.0	22:05 1.2	22:05 9.5	S 19	16:26 -0.4	16:44 9.0	22:50 0.3	23:00 10.2	
	F 20	4:35 0.1	22:45 8.3	22:45 0.9	22:45 9.8	M 20	17:14 -0.7	17:32 9.4	23:45 -0.1	23:45 10.5	
●	S 21	5:07 -0.3	23:27 8.6	23:27 0.7	23:27 10.0	Tu 21	18:02 -0.9	18:20 9.8			
	S 22	5:47 -0.5	17:58 8.9			W 22	18:50 10.5	19:08 -1.0	19:05 10.0	19:05 -0.5	
	M 23	6:29 10.1	18:38 -0.6	18:40 9.2	18:40 0.4	E Th 23	19:38 10.4	19:56 -0.9	19:51 10.1	19:51 -0.6	
	Tu 24	7:13 10.1	19:15 -0.7	19:24 9.4	19:24 0.8	F 24	20:26 10.2	20:44 -0.5	20:43 10.1	20:43 -0.5	
	W 25	7:57 10.0	20:02 -0.6	20:13 9.5	20:13 0.2	S 25	21:14 9.8	21:32 -0.8	21:31 10.0	21:31 -0.3	
	Th 26	8:45 9.8	20:50 -0.4	21:03 9.6	21:03 0.2	S 26	22:02 9.4	22:20 0.1	22:36 9.9	22:36 -0.1	
	F 27	9:32 9.6	21:38 -0.2	22:00 9.6	22:00 0.2	M 27	22:50 8.9	23:08 0.4		0.0	
	S 28	10:18 9.2	22:25 0.1	22:58 9.6	22:58 0.2	Tu 28	23:38 8.6	23:56 0.7		9.6	
	S 29	11:03 9.0	23:13 0.8	23:55 9.7	23:55 0.1	S W 29	24:26 0.1	24:44 8.5	25:00 0.7	25:00 9.7	
	M 30	11:48 8.8	24:00 0.5			Th 30	25:14 0.0	25:32 8.5	25:44 0.5	25:44 9.9	
Tu 31	12:33 0.0	24:48 8.7	25:30 0.5	25:30 10.0	F 31	26:02 -0.2	26:20 8.7	26:32 0.8	26:32 10.2		

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The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ♀, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.										NOVEMBER.										DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.									W.	Mo.									W.	Mo.								
E	M	1	4:13 -0.2	10:25 9.4	16:35 -0.2	22:47 9.8				Th	1	5:10 0.2	11:21 9.7	17:37 -0.1	23:45 9.0					A	S	1	5:18 0.9	11:27 9.5	17:47 0.0	23:53 8.4				
	Tu	2	4:47 -0.3	11:10 9.6	17:18 -0.3	23:30 9.8				F	2	5:47 0.4	11:56 9.7	18:18 -0.1						N	S	2	5:53 1.0	12:02 9.5	18:22 0.0					
A	W	3	5:38 -0.3	11:50 9.8	18:00 -0.3					S	3	0:18 8.8	6:22 0.7	12:32 9.5	18:50 0.0						M	3	0:26 8.4	6:27 1.1	12:37 9.5	19:00 -0.1				
	Th	4	0:08 9.6	6:16 -0.1	12:25 9.7	18:40 -0.2			A	S	4	0:53 8.6	6:57 1.0	13:07 9.3	19:27 0.1						Tu	4	1:01 8.4	7:04 1.2	13:15 9.4	19:38 -0.1				
N	F	5	0:46 9.3	6:53 0.2	13:02 9.6	19:18 0.0				M	5	1:30 8.5	7:34 1.2	13:45 9.2	20:07 0.2						W	5	1:40 8.5	7:43 1.3	13:55 9.2	20:20 0.0				
	S	6	1:25 9.0	7:30 0.6	13:40 9.3	19:58 0.2			N	Tu	6	2:10 8.3	8:13 1.5	14:25 8.9	20:50 0.4						Th	6	2:23 8.5	8:27 1.4	14:40 9.0	21:05 0.2				
C	S	7	2:02 8.6	8:08 1.0	14:20 9.1	20:40 0.4				W	7	2:52 8.2	8:58 1.7	15:10 8.7	21:37 0.6						F	7	3:10 8.5	9:16 1.4	15:27 8.9	21:49 0.3				
	M	8	2:42 8.3	8:50 1.4	15:00 8.8	21:24 0.7				Th	8	3:40 8.1	9:47 1.8	15:59 8.6	22:27 0.7						C	S	8	4:00 8.6	10:09 1.2	16:19 8.8	22:45 0.4			
E	Tu	9	3:27 8.0	9:34 1.6	15:47 8.5	22:11 0.9				F	9	4:32 8.1	10:41 1.7	16:52 8.6	23:20 0.7						S	9	4:53 8.8	11:06 1.0	17:15 8.8	23:39 0.4				
	W	10	4:15 7.8	10:22 1.8	16:36 8.5	23:02 0.9				S	10	5:27 8.3	11:19 1.4	17:48 8.7							M	10	5:48 9.1	12:05 0.6	18:13 8.9					
N	Th	11	5:08 7.8	11:16 1.8	17:30 8.5	23:58 0.9				S	11	0:15 0.6	6:23 8.7	12:37 1.0	18:47 9.0						Tu	11	0:33 0.3	6:45 9.5	13:05 0.1	19:12 9.1				
	F	12	6:03 7.9	12:12 1.6	18:27 8.6					M	12	1:08 0.3	7:20 9.2	13:35 0.3	19:44 9.3						W	12	1:20 0.1	7:43 10.0	14:03 -0.4	20:11 9.4				
A	S	13	0:53 0.7	7:00 8.2	13:12 1.2	19:23 9.0			E	Tu	13	2:02 0.0	8:13 9.8	14:30 -0.3	20:40 9.8						Th	13	2:24 -0.1	8:38 10.5	15:00 -0.9	21:08 9.7				
	S	14	1:45 0.3	7:55 8.8	14:05 0.6	20:17 9.4				W	14	2:54 -0.4	9:05 10.4	15:24 -1.0	21:33 10.1						F	14	3:17 -0.4	9:32 11.0	15:55 -1.4	22:03 9.9				
N	M	15	2:36 -0.1	8:46 9.4	15:00 -0.1	21:10 9.9				Th	15	3:45 -0.7	9:57 10.9	16:16 -1.6	22:25 10.4						P	S	15	4:10 -0.6	10:25 11.3	16:48 -1.8	22:57 10.1			
	Tu	16	3:25 -0.5	9:35 10.1	15:49 -0.8	22:00 10.4				F	16	4:33 -1.0	10:46 11.3	17:07 -2.0	23:15 10.6						S	16	5:02 -0.8	11:17 11.5	17:40 -2.0	23:49 10.2				
C	W	17	4:12 -0.9	10:22 10.6	16:38 -1.4	22:49 10.7				S	17	5:22 -1.0	11:35 11.5	17:57 -2.1							M	17	5:55 -0.8	12:09 11.5	18:33 -2.0					
	Th	18	5:00 -1.2	11:10 11.1	17:27 -1.8	23:36 10.9				S	18	0:05 10.5	6:12 -1.0	12:26 11.5	18:49 -2.0						Tu	18	0:41 10.2	6:47 -0.7	13:00 11.8	19:25 -1.8				
E	F	19	5:45 -1.2	11:57 11.3	18:15 -2.0				S	M	19	0:57 10.3	7:03 -0.7	13:18 11.3	19:42 -1.8						W	19	1:34 10.0	7:40 -0.4	13:55 10.9	20:18 -1.4				
	S	20	0:25 10.8	6:30 -1.1	12:45 11.3	19:07 -1.9				Tu	20	1:50 10.0	7:57 -0.3	14:12 10.8	20:37 -1.3						Th	20	2:28 9.7	8:37 -0.1	14:50 10.4	21:13 -0.9				
N	S	21	1:15 10.5	7:20 -0.8	13:36 11.1	19:59 -1.6				W	21	2:47 9.6	8:54 0.1	15:09 10.3	21:35 -0.8						F	21	3:25 9.5	9:36 0.2	15:47 9.8	22:09 -0.4				
	M	22	2:07 10.1	8:15 -0.3	14:30 10.7	20:53 -1.1				Th	22	3:46 9.2	9:55 0.5	16:09 9.7	22:35 -0.3						S	22	4:24 9.2	10:37 0.5	16:47 9.2	23:06 0.0				
A	Tu	23	3:03 9.5	9:10 0.2	15:25 10.2	21:53 -0.6				F	23	4:49 8.9	11:00 0.7	17:13 9.3	23:37 0.1						E	S	23	5:23 9.0	11:40 0.8	17:48 8.8				
	W	24	4:03 9.0	10:12 0.6	16:28 9.7	22:55 -0.2				S	24	5:55 8.7	12:08 0.9	18:20 8.9							M	24	0:04 0.4	6:23 8.9	12:43 0.9	18:52 8.4				
N	Th	25	5:08 8.7	11:17 0.8	17:34 9.3					S	25	0:38 0.3	6:58 8.8	13:15 0.8	19:24 8.8						Tu	25	1:02 0.7	7:20 8.9	13:43 0.9	19:52 8.2				
	F	26	0:02 0.2	6:17 8.5	12:30 0.9	18:41 9.1			E	M	26	1:38 0.4	7:56 9.0	14:13 0.7	20:24 8.7						W	26	1:57 0.9	8:12 9.0	14:36 0.8	20:48 8.0				
C	S	27	1:06 0.3	7:27 8.6	13:37 0.8	19:48 9.1				Tu	27	2:32 0.5	8:48 9.2	15:07 0.5	21:13 8.6						Th	27	2:48 0.9	9:00 9.3	15:24 0.6	21:37 8.1				
	S	28	2:07 0.3	8:25 8.9	14:35 0.5	20:47 9.2				W	28	3:30 0.5	9:33 9.4	15:53 0.3	22:05 8.6						A	F	28	3:37 0.9	9:47 9.4	16:06 0.4	22:17 8.1			
E	M	29	3:00 0.2	9:16 9.2	15:30 0.2	21:40 9.2				Th	29	4:05 0.6	10:15 9.6	16:35 0.2	22:45 8.5						S	29	4:20 0.9	10:28 9.5	16:48 0.2	22:56 8.2				
	Tu	30	3:50 0.1	10:01 9.5	16:15 0.0	22:26 9.2				F	30	4:43 0.7	10:53 9.6	17:12 0.1	23:20 8.4						N	S	30	4:59 1.0	11:07 9.6	17:25 0.0	23:32 8.3			
N	W	31	4:33 0.1	10:43 9.7	16:59 -0.1	23:08 9.1															M	31	5:35 1.0	11:43 9.6	18:03 -0.1					

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The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.							
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
E	M 1	5:22	12:20	17:45	0.6	A	Th 1	1:04	6:15	13:21	18:28	A	Th 1	4:44	11:35	16:56	0.6
	Tu 2	1:00	6:16	13:16	3.0		F 2	1:59	7:08	14:22	19:18		F 2	0:08	5:28	12:23	2.8
	W 3	1:55	7:15	14:15	2.9		S 3	2:52	8:08	15:21	20:13		S 3	1:02	6:21	13:26	2.7
A	Th 4	2:50	8:10	15:10	2.9	N	S 4	3:43	9:10	16:15	21:13	N	S 4	2:02	7:22	14:38	2.7
	F 5	3:40	9:08	16:00	3.0		M 5	4:32	10:17	17:05	22:10		M 5	3:00	8:27	15:42	2.8
	S 6	4:24	9:58	16:49	3.1		Tu 6	5:18	11:00	17:49	23:08		Tu 6	3:57	9:29	16:34	3.0
N	S 7	5:06	10:44	17:33	3.3	O	W 7	6:03	11:48	18:38	23:53	O	W 7	4:48	10:28	17:20	4.48
	M 8	5:47	11:30	18:16	3.4		Th 8	6:46	12:33	19:13	24:38		Th 8	5:37	11:20	18:05	5.37
	Tu 9	6:27	12:14	18:57	3.6		F 9	0:42	7:28	13:18	19:55		F 9	6:23	12:07	18:47	3.8
O	W 10	0:14	7:08	12:57	0.3	E	S 10	1:29	8:13	14:01	20:38	E	S 10	0:25	7:08	12:53	0.25
	Th 11	0:57	7:49	13:40	0.1		S 11	2:11	8:58	14:45	21:23		S 11	1:12	7:53	13:37	1.12
	F 12	1:42	8:33	14:22	0.0	P	M 12	3:03	9:45	15:29	22:10	P	M 12	2:00	8:38	14:21	2.00
E	S 13	2:30	9:18	15:07	-0.1		Tu 13	3:52	10:33	16:11	23:02		Tu 13	2:47	9:25	15:05	-0.6
	S 14	3:18	10:05	15:53	-0.1		W 14	4:44	11:27	17:04	23:57	C	W 14	3:34	10:15	15:51	-0.5
	M 15	4:09	10:56	16:40	0.0	C	Th 15	5:39	12:25	17:55	24:50		Th 15	4:26	11:08	16:40	4.26
E	Tu 16	5:01	11:48	17:29	0.1		F 16	0:58	6:40	13:33	18:58		F 16	5:20	12:08	17:33	-0.2
	W 17	0:23	6:00	12:47	3.3	S	S 17	2:03	7:47	14:42	19:58	S	S 17	0:35	6:20	13:17	0.35
	Th 18	1:23	7:02	13:53	3.3		S 18	3:08	8:57	15:45	21:06		S 18	1:43	7:27	14:28	1.43
P	F 19	2:25	8:09	15:00	3.4	S	M 19	4:09	10:02	16:43	22:11	S	M 19	2:51	8:37	15:30	2.51
	S 20	3:27	9:11	16:01	3.6		Tu 20	5:06	10:59	17:37	23:08		Tu 20	3:55	9:42	16:28	3.55
	S 21	4:25	10:18	16:57	3.7	W	W 21	5:59	11:49	18:25	24:00	W	W 21	4:53	10:39	17:19	4.53
S	M 22	5:19	11:16	17:52	3.9		Th 22	0:00	6:46	12:34	19:10		Th 22	5:42	11:25	18:07	0.0
	Tu 23	6:11	12:07	18:41	4.0	E	F 23	0:48	7:31	13:14	19:52	E	F 23	6:27	12:06	18:48	0.48
	W 24	0:12	7:00	12:54	0.0		S 24	1:32	8:13	13:53	20:35		S 24	0:31	7:08	12:46	0.31
A	Th 25	1:02	7:48	13:38	-0.1		S 25	2:12	8:55	14:30	21:15	A	S 25	1:10	7:48	13:22	1.10
	F 26	1:50	8:34	14:21	-0.1	M	M 26	2:50	9:35	15:06	21:52		M 26	1:47	8:27	13:57	1.47
	S 27	2:34	9:20	15:01	0.0		Tu 27	3:27	10:13	15:42	22:39		Tu 27	2:21	9:05	14:31	2.21
E	S 28	3:17	10:07	15:42	0.1	W	W 28	4:05	10:52	16:18	23:23	W	W 28	2:56	9:40	15:04	3.31
	M 29	4:00	10:50	16:22	0.3			0.4	2.7	0.4	3.0		Th 29	3:31	10:15	15:38	0.3
	Tu 30	4:43	11:36	17:02	0.6	S							F 30	4:10	10:54	16:15	0.4
W	W 31	0:12	5:26	12:25	0.0							S	S 31	4:54	11:41	17:00	0.5
		3.0	0.7	2.6	0.6									0.5	2.4	0.7	0.5

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APRIL.					MAY.					JUNE.										
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.						
	W. Mo.						W. Mo.						W. Mo.							
N	S	1	0:14 2.7	5:46 0.6	12:47 2.3	17:52 0.8	D	Tu	1	0:35 2.8	6:16 0.5	13:22 2.5	18:35 0.7	F	1	2:12 2.9	7:47 0.8	14:50 3.2	20:25 0.3	
	M	2	1:15 2.7	6:45 0.7	13:57 2.4	18:57 0.8		W	2	1:40 2.8	7:19 0.5	14:28 2.7	19:42 0.6	E	S	2	3:17 3.1	8:45 0.2	15:46 3.5	21:28 0.1
	Tu	3	2:20 2.8	7:49 0.6	15:05 2.6	20:10 0.7		Th	3	2:45 3.0	8:20 0.4	15:25 3.0	20:52 0.4		S	3	4:15 3.2	9:41 0.0	16:38 3.8	22:27 -0.1
	W	4	3:22 3.0	8:55 0.5	16:00 2.9	21:20 0.5		F	4	3:47 3.2	9:20 0.2	16:16 3.4	21:54 0.1		M	4	5:08 3.4	10:35 -0.1	17:28 4.1	23:24 -0.3
	Th	5	4:19 3.3	9:54 0.3	16:50 3.2	22:20 0.2	E	S	5	4:42 3.4	10:15 0.0	17:05 3.8	22:50 -0.2		Tu	5	6:00 3.5	11:30 -0.3	18:18 4.8	
	F	6	5:10 3.5	10:48 0.0	17:35 3.6	23:15 -0.2		S	6	5:34 3.6	11:08 -0.3	17:52 4.1	23:44 -0.4	P	W	6	0:15 -0.4	6:50 3.7	12:20 -0.4	19:07 4.4
	S	7	6:00 3.7	11:38 -0.3	18:19 3.9			M	7	6:21 3.7	11:55 -0.4	18:38 4.3			Th	7	1:05 -0.5	7:38 3.7	13:10 -0.4	19:57 4.4
E	S	8	0:05 -0.4	6:45 3.9	12:24 -0.5	19:02 4.2	O	Tu	8	0:34 -0.6	7:09 3.8	12:43 -0.5	19:26 4.4	S	F	8	1:54 -0.5	8:30 3.7	14:00 -0.3	20:47 4.3
O	M	9	0:54 -0.6	7:32 3.9	13:10 -0.6	19:48 4.3	P	W	9	1:22 -0.7	7:58 3.8	13:30 -0.5	20:15 4.4		S	9	2:43 -0.4	9:20 3.6	14:50 -0.2	21:40 4.1
P	Tu	10	1:40 -0.7	8:18 3.9	13:55 -0.6	20:35 4.3		Th	10	2:11 -0.6	8:48 3.7	14:17 -0.4	21:04 4.3		S	10	3:31 -0.2	10:15 3.4	15:44 0.0	22:32 3.8
	W	11	2:29 -0.7	9:05 3.7	14:40 -0.5	21:24 4.2	S	F	11	3:00 -0.5	9:40 3.5	15:08 -0.2	21:58 4.1		M	11	4:20 0.0	11:12 3.3	16:39 0.2	23:31 3.5
	Th	12	3:17 -0.5	9:56 3.5	15:27 -0.3	22:17 4.0		S	12	3:50 -0.3	10:35 3.3	16:00 0.0	22:52 3.8		Tu	12	5:12 0.2	12:12 3.2	17:36 0.5	
	F	13	4:07 -0.3	10:50 3.3	16:18 0.0	23:12 3.7		S	13	4:42 0.0	11:35 3.2	16:57 0.2	23:54 3.5	C	W	13	0:30 3.2	6:05 0.4	13:12 3.1	18:38 0.7
S	S	14	5:01 0.0	11:54 3.1	17:14 0.3			M	14	5:38 0.3	12:40 3.0	18:00 0.5			Th	14	1:34 3.0	7:00 0.6	14:10 3.1	19:42 0.9
C	S	15	0:15 3.5	6:00 3.3	13:00 2.9	18:18 0.5	C	Tu	15	1:00 3.3	6:38 0.5	13:42 3.0	19:08 0.7	E	F	15	2:31 2.9	7:54 0.7	15:07 3.1	20:47 1.0
	M	16	1:22 3.3	7:05 3.0	14:05 2.9	19:30 0.6		W	16	2:05 3.1	7:39 0.6	14:45 3.1	20:20 0.8		S	16	3:30 2.8	8:46 0.7	16:00 3.2	21:45 1.0
	Tu	17	2:30 3.2	8:10 0.7	15:10 3.0	20:42 0.7		Th	17	3:06 3.1	8:38 0.7	15:40 3.2	21:29 0.8		S	17	4:20 2.8	9:36 0.7	16:45 3.3	22:31 0.9
	W	18	3:35 3.2	9:16 0.7	16:08 3.2	21:50 0.6	E	F	18	4:04 3.1	9:32 0.6	16:32 3.3	22:27 0.7	A	M	18	5:08 2.8	10:20 0.7	17:25 3.4	23:10 0.7
	Th	19	4:30 3.3	10:10 0.6	16:59 3.4	22:47 0.5		S	19	4:54 3.1	10:18 0.5	17:17 3.5	23:07 0.7		Tu	19	5:50 2.9	11:02 0.6	18:05 3.5	23:50 0.5
	F	20	5:20 3.4	10:56 0.4	17:43 3.5	23:32 0.4		S	20	5:37 3.1	11:00 0.4	17:58 3.1	23:45 0.5		W	20	6:30 2.9	11:44 0.5	18:44 3.6	
E	S	21	6:04 3.4	11:35 0.3	18:24 2.7			M	21	6:18 3.1	11:40 0.4	18:34 3.6		●	Th	21	0:25 0.3	7:10 3.0	12:22 0.4	19:20 3.6
	S	22	0:10 0.3	6:44 3.4	12:14 0.2	19:01 3.7	A	Tu	22	0:20 0.4	6:57 3.1	12:15 0.3	19:10 3.6	N	F	22	1:05 0.2	7:48 3.0	13:00 0.3	19:56 3.6
●	M	23	0:46 0.2	7:24 3.3	12:30 0.1	19:38 3.7	●	W	23	0:58 0.3	7:35 3.0	12:30 0.3	19:45 3.6		S	23	1:45 0.0	8:26 3.0	13:40 0.2	20:38 3.5
	Tu	24	1:20 0.2	8:00 3.2	13:22 0.1	20:14 3.6		Th	24	1:28 0.2	8:12 3.0	13:25 0.3	20:20 3.5		S	24	2:25 0.0	9:07 3.0	14:24 0.2	21:17 3.5
A	W	25	1:53 0.1	8:37 3.1	14:00 0.2	20:50 3.5		F	25	2:05 0.1	8:47 2.9	14:02 0.3	20:38 3.4		M	25	3:08 0.0	9:48 2.9	15:09 0.2	22:01 3.3
	Th	26	2:28 0.1	9:11 2.9	14:29 0.3	21:25 3.3	N	S	26	2:44 0.1	9:26 2.8	14:40 0.3	21:38 3.3		Tu	26	3:50 0.0	10:35 2.9	15:57 0.2	22:49 3.2
	F	27	3:05 0.2	9:46 2.7	15:05 0.4	22:04 3.1		S	27	3:25 0.1	10:07 2.7	15:24 0.3	22:22 3.1		W	27	4:36 0.1	11:25 3.0	16:50 0.3	23:40 3.1
	S	28	3:46 0.2	10:28 2.6	15:45 0.5	22:46 3.0		M	28	4:10 0.2	10:56 2.7	16:12 0.4	23:10 3.0		Th	28	5:27 0.1	12:20 3.0	17:48 0.3	
N	S	29	4:30 0.3	11:18 2.6	16:31 0.6	23:36 2.8		Tu	29	4:58 0.2	11:50 2.7	17:08 0.5		D	F	29	0:38 3.0	6:20 0.2	13:20 3.1	18:51 0.5
	M	30	5:20 0.4	12:15 2.4	17:28 0.7			W	30	0:06 2.9	6:50 0.3	12:50 2.7	18:08 0.5	E	S	30	1:42 2.9	7:14 0.2	14:20 3.3	19:56 0.3
							D	Th	31	1:07 2.9	6:48 0.4	13:52 2.9	19:16 0.5							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
	S	1	2:46 3.0	8:14 0.2	15:18 3.5	21:02 0.3	P	W	1	4:28 3.1	9:52 0.2	16:52 3.9	22:46 0.2	S	1	5:59 3.5	11:40 0.0	18:23 3.9		
	M	2	3:47 3.1	9:12 0.2	16:15 3.8	22:06 0.2	S	Th	2	5:21 3.3	10:55 0.1	17:45 4.0	23:40 0.1	○	S	2	0:12 0.0	6:47 3.7	12:29 -0.1	19:10 3.9
	Tu	3	4:45 3.2	10:10 0.0	17:10 4.0	23:04 0.0		F	3	6:13 3.5	11:50 -0.1	18:37 4.1			M	3	0:56 -0.1	7:31 3.8	13:15 -0.1	19:52 3.9
P	W	4	5:38 3.4	11:08 -0.1	18:00 4.2	23:58 -0.2	○	S	4	0:30 -0.1	7:02 3.7	12:42 -0.2	19:25 4.2		Tu	4	1:35 -0.1	8:15 3.8	13:57 -0.1	20:36 3.7
z	Th	5	6:29 3.5	12:00 -0.2	18:50 4.4		S	5	1:17 -0.2	7:50 3.8	13:30 -0.3	20:15 4.1	E	W	5	2:13 -0.1	8:58 3.8	14:37 0.0	21:18 3.5	
○	F	6	0:50 -0.3	7:20 3.7	12:54 -0.3	19:41 4.4		M	6	2:00 -0.2	8:38 3.6	14:17 -0.2	21:00 3.9		Th	6	2:52 0.0	9:42 3.6	15:16 0.2	22:00 3.2
	S	7	1:36 -0.3	8:10 3.7	13:44 -0.3	20:31 4.3		Tu	7	3:44 -0.2	9:25 3.7	15:04 0.0	21:46 3.7		F	7	3:29 0.2	10:24 3.4	15:54 0.4	22:44 2.9
	S	8	2:24 -0.3	9:00 3.7	14:35 -0.2	21:23 4.1	E	W	8	3:25 0.0	10:14 3.6	15:46 0.2	22:34 3.4		S	8	4:06 0.4	11:10 3.1	16:33 0.6	23:30 2.6
	M	9	3:10 -0.2	9:50 3.6	15:25 0.0	22:12 3.8		Th	9	4:06 0.1	11:02 3.4	16:30 0.4	23:20 3.0	A	S	9	4:44 0.6	11:59 2.9	17:16 0.7	
	Tu	10	3:55 0.0	10:43 3.4	16:15 0.2	23:04 3.5		F	10	4:47 0.4	11:52 3.2	17:12 0.7		○	M	10	0:21 2.4	5:25 0.8	12:52 2.6	18:04 0.9
	W	11	4:41 0.2	11:38 3.8	17:05 0.5	23:57 3.2	○	S	11	0:10 2.7	5:30 0.6	12:45 3.0	18:00 0.9		Tu	11	1:21 2.3	6:15 0.9	13:48 2.7	19:00 1.0
E	Th	12	5:27 0.4	12:33 3.2	17:58 0.7		S	12	1:04 2.5	6:14 0.8	13:42 2.9	18:54 1.0	N	W	12	2:25 2.3	7:13 1.0	14:48 2.7	20:05 0.9	
○	F	13	0:51 2.9	6:15 0.6	13:30 3.0	18:54 0.9	A	M	13	2:00 2.4	7:04 0.9	14:37 2.8	19:50 1.1		Th	13	3:25 2.4	8:22 1.0	15:45 2.9	21:10 0.8
	S	14	1:47 2.7	7:05 0.7	14:26 3.0	19:54 1.1		Tu	14	3:05 2.4	8:00 1.0	15:32 2.9	20:53 1.0		F	14	4:17 2.6	9:27 0.8	16:35 3.1	22:08 0.6
	S	15	2:46 2.6	7:56 0.8	15:20 3.0	20:52 1.1		W	15	4:01 2.5	9:00 0.9	16:21 3.0	21:51 0.9		S	15	5:04 2.9	10:25 0.5	17:22 3.4	23:00 0.3
A	M	16	3:40 2.6	8:50 0.9	16:09 3.1	21:44 1.0	N	Th	16	4:50 2.6	9:57 0.8	17:07 3.2	22:43 0.6		S	16	5:47 3.2	11:18 0.2	18:07 3.6	23:47 0.0
	Tu	17	4:32 2.6	9:40 0.8	16:55 3.2	22:33 0.9		F	17	5:33 2.8	10:50 0.6	17:52 3.4	23:32 0.4		M	17	6:30 3.5	12:06 -0.1	18:50 3.8	
W	18	5:19 2.8	10:29 0.7	17:36 3.4	23:16 0.7		S	18	6:17 3.1	11:39 0.4	18:33 3.6		●	Tu	18	0:31 -0.2	7:12 3.8	12:52 -0.4	19:33 3.9	
N	Th	19	6:00 2.8	11:15 0.6	18:16 3.5		●	S	19	0:16 0.1	6:49 3.3	12:27 0.0	19:13 3.8	E	W	19	1:13 -0.4	7:53 4.0	13:38 -0.5	20:18 3.8
	F	20	0:00 0.4	6:42 3.0	12:00 0.4	18:56 3.6		M	20	0:58 -0.1	7:38 3.5	13:11 -0.2	19:57 3.8		Th	20	1:57 -0.5	8:36 4.0	14:33 -0.5	21:02 3.7
●	S	21	0:40 0.2	7:22 3.1	12:44 0.2	19:36 3.7		Tu	21	1:41 -0.3	8:20 3.6	13:55 -0.3	20:38 3.8	P	F	21	2:40 -0.4	9:23 4.0	15:10 -0.4	21:50 3.5
	S	22	1:22 0.0	8:03 3.2	13:25 0.0	20:18 3.7		W	22	2:22 -0.3	9:02 3.7	14:41 -0.3	21:23 3.7		S	22	3:25 -0.3	10:12 3.9	15:59 -0.3	22:42 3.3
	M	23	2:05 -0.1	8:45 3.3	14:10 -0.1	21:00 3.7	E	Th	23	3:05 -0.3	9:47 3.7	15:27 -0.3	22:10 3.5		S	23	4:12 -0.1	11:06 3.7	16:51 0.0	23:38 3.0
	Tu	24	2:45 -0.2	9:27 3.3	14:55 -0.1	21:43 3.5		F	24	3:49 -0.2	10:35 3.6	16:17 -0.1	22:59 3.2		M	24	5:03 0.2	12:04 3.5	17:47 0.3	
	W	25	3:28 -0.2	10:12 3.3	15:45 0.0	22:30 3.4		S	25	4:36 -0.1	11:28 3.5	17:08 0.1	23:54 3.0	○	Tu	25	0:42 2.9	6:08 0.4	13:10 3.4	18:52 0.5
E	Th	26	4:14 -0.1	11:00 3.3	16:34 0.0	23:20 3.2	D	S	26	5:25 0.1	12:25 3.4	18:06 0.3		S	W	26	1:50 2.8	7:09 0.5	14:18 3.3	20:02 0.6
	F	27	5:00 0.0	11:53 3.8	17:27 0.2		P	M	27	0:58 2.8	6:20 0.3	13:29 3.4	19:11 0.5		Th	27	2:58 2.9	8:23 0.6	15:25 3.4	21:12 0.6
D	S	28	0:15 3.0	5:50 0.1	12:50 3.3	18:27 0.3		Tu	28	2:05 2.8	7:23 0.5	14:36 3.4	20:20 0.6		F	28	3:56 8.1	9:34 0.5	16:24 3.5	22:13 0.5
	S	29	1:16 2.9	6:45 0.3	13:52 3.4	19:31 0.4	S	W	29	3:12 2.9	8:33 0.5	15:40 3.5	21:23 0.6		S	29	4:52 3.3	10:38 0.3	17:16 3.6	23:05 0.3
	M	30	2:24 2.9	7:45 0.3	14:55 3.5	20:40 0.4		Th	30	4:12 3.0	9:42 0.4	16:39 3.6	22:32 0.4		S	30	5:41 3.5	11:32 0.2	18:04 3.6	23:48 0.2
	Tu	31	3:26 2.9	8:48 0.3	15:55 3.7	21:45 0.4		F	31	5:08 3.3	10:43 0.2	17:33 3.8	23:27 0.2							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard. 5th meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.								
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.				W.	Mo.				W.	Mo.						
E	M	1	6:26 3.7	12:15 0.1	18:48 3.6	Th	1	0:34 0.2	7:24 3.8	13:10 0.3	A	S	1	0:40 0.4	7:36 3.6	13:19 0.3	20:00 3.0	
	Tu	2	0:28 0.0	7:08 3.8	12:56 0.0	F	2	1:10 0.2	8:02 3.7	13:44 0.2	S	S	2	1:15 0.8	8:11 3.6	13:54 0.3	20:38 2.9	
	W	3	1:05 0.0	7:50 3.8	13:35 0.1	S	3	1:44 0.2	8:38 3.6	14:18 0.2	N	M	3	1:52 0.4	8:49 3.4	14:30 0.2	21:18 2.8	
A	Th	4	1:42 0.0	8:29 3.7	14:11 0.1	A	S	4	2:18 0.3	9:16 3.4	14:54 0.3	Tu	4	2:28 0.4	9:30 3.3	15:10 0.2	22:00 2.7	
	F	5	2:18 0.1	9:08 3.6	14:46 0.2	M	5	2:54 0.4	9:55 3.2	15:32 0.3	W	5	3:08 0.4	10:10 3.2	15:52 0.3	22:44 2.7		
	S	6	2:52 0.2	9:48 3.4	15:22 0.3	N	Tu	6	3:30 0.5	10:36 3.0	16:12 0.4	Th	6	3:53 0.5	10:55 3.0	16:36 0.3	23:34 2.6	
N	A	S	3:27 0.4	10:29 3.1	15:59 0.4	W	7	4:14 0.6	11:23 2.9	17:00 0.5	F	7	4:44 0.5	11:44 2.9	17:25 0.4	24:00 2.6		
	M	8	4:03 0.6	11:13 2.9	16:40 0.6	Th	8	0:04 2.4	5:05 0.7	12:16 2.7	C	S	8	0:28 2.7	5:40 0.6	12:40 2.8	18:20 0.4	
	Tu	9	4:44 0.7	12:01 2.7	17:27 0.7	C	F	9	1:05 2.5	6:06 0.8	13:18 2.7	S	9	1:25 2.8	6:44 0.6	13:42 2.8	19:18 0.4	
C	W	10	0:38 2.3	5:34 0.8	12:59 2.7	S	10	2:08 2.6	7:14 0.7	14:22 2.8	E	M	10	2:25 3.0	7:51 0.5	14:46 2.9	20:16 0.3	
	Th	11	1:45 2.3	6:38 0.9	14:02 2.7	S	11	3:05 2.9	8:22 0.6	15:24 3.0	Tu	11	3:20 3.3	8:57 0.3	15:45 3.1	21:14 0.2		
	F	12	2:50 2.5	7:46 0.9	15:04 2.8	M	12	3:56 3.2	9:28 0.2	16:19 3.2	W	12	4:14 3.6	10:00 0.1	16:40 3.2	22:10 0.0		
E	S	13	3:42 2.7	8:55 0.7	16:00 3.1	E	Tu	13	4:45 3.6	10:25 0.1	17:09 3.4	Th	13	5:05 4.0	10:56 -0.1	17:32 3.4	23:02 -0.2	
	S	14	4:31 3.1	9:57 0.4	16:50 3.3	W	14	5:30 3.9	11:20 -0.2	17:57 3.6	F	14	5:55 4.2	11:50 -0.3	18:24 3.5	23:55 -0.3		
	M	15	5:18 3.4	10:52 0.1	17:38 3.5	Th	15	6:18 4.2	12:10 -0.4	18:45 3.7	P	S	15	6:45 4.4	12:40 -0.4	19:14 3.6	24:00 3.7	
P	Tu	16	6:00 3.8	11:42 -0.2	18:24 3.7	P	F	16	0:19 -0.4	7:04 4.4	13:00 -0.5	S	S	16	0:46 -0.4	7:35 4.4	13:32 -0.5	20:04 3.7
	W	17	0:02 -0.3	6:42 4.0	12:31 -0.4	S	17	1:06 -0.5	7:51 4.4	13:48 -0.6	M	17	1:37 -0.4	8:25 4.4	14:20 -0.4	20:55 3.6		
	Th	18	0:47 -0.5	7:27 4.2	13:19 -0.6	S	18	1:54 -0.4	8:41 4.4	14:37 -0.5	Tu	18	2:29 -0.3	9:16 4.2	15:10 -0.3	21:48 4.6		
S	F	19	1:30 -0.5	8:12 4.3	14:05 -0.6	S	M	19	2:44 -0.3	9:34 4.2	15:28 -0.3	W	19	3:21 -0.2	10:10 4.0	16:00 -0.1	22:43 3.5	
	S	20	2:15 -0.5	9:00 4.2	14:52 -0.5	Tu	20	3:36 -0.1	10:28 3.9	16:20 -0.1	Th	20	4:16 0.1	11:08 3.7	16:50 0.1	23:42 3.3		
	S	21	3:01 -0.3	9:51 4.1	15:42 -0.3	W	21	4:32 0.1	11:27 3.7	17:12 0.2	F	21	5:12 0.8	12:05 3.4	17:42 0.3	24:00 3.3		
D	M	22	3:52 -0.1	10:45 3.9	16:35 0.0	D	Th	22	0:05 3.2	5:32 0.4	12:30 3.4	S	22	0:40 3.2	6:12 3.0	13:00 3.1	18:35 0.5	
	Tu	23	4:45 0.2	11:45 3.6	17:30 0.2	F	23	1:10 3.1	6:39 0.6	13:34 3.2	E	S	23	1:42 3.2	7:12 0.8	14:04 2.9	19:30 -0.5	
	W	24	0:25 3.0	5:47 0.4	12:50 3.4	S	24	2:12 3.1	7:48 0.8	14:36 3.1	M	24	2:40 3.2	8:26 1.0	15:02 2.8	20:27 0.7		
E	Th	25	1:34 2.9	6:56 0.6	14:00 3.3	S	25	3:11 3.2	9:05 0.8	15:35 3.1	Tu	25	3:34 3.2	9:36 1.0	15:58 2.8	21:20 0.7		
	F	26	2:39 3.0	8:10 0.7	15:05 3.2	E	M	26	4:05 3.4	10:08 0.8	16:28 3.1	W	26	4:25 3.3	10:29 1.0	16:49 2.8	22:07 0.7	
	S	27	3:38 3.2	9:25 0.6	16:02 3.3	Tu	27	4:54 3.5	10:59 0.7	17:16 3.1	Th	27	5:10 3.4	11:10 0.8	17:35 2.9	22:52 0.7		
N	S	28	4:30 3.4	10:26 0.5	16:54 3.3	W	28	5:38 3.6	11:38 0.6	18:00 3.1	A	F	28	5:54 3.5	11:42 0.7	18:16 2.9	23:35 0.6	
	M	29	5:20 3.6	11:17 0.4	17:40 3.4	Th	29	6:20 3.6	12:10 0.5	18:40 3.1	S	29	6:35 3.5	12:18 0.5	18:55 2.9	24:00 3.0		
	Tu	30	6:03 3.7	12:00 0.3	18:24 3.4	O	F	30	0:04 0.4	7:00 3.7	12:45 0.4	N	S	30	0:14 0.5	7:10 3.6	12:54 0.4	19:35 3.0
O	W	31	6:45 3.8	12:35 0.3	19:04 3.3						M	31	0:52 0.4	7:48 3.6	13:35 0.2	20:14 3.0		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water which is the datum of soundings on the Coast and Geodetic Survey Charts for this region and which is 1.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.  
 ●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.							
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
E	M 1	1:54	8:23	14:10	20:43	D	Th 1	2:52	9:42	15:17	21:45	A	Th 1	1:11	8:05	13:28	20:07
		2.2	0.4	2.0	0.2			2.2	0.5	1.6	0.5			2.2	0.5	1.7	0.6
D	Tu 2	2:50	9:25	15:08	21:36	A	F 2	3:43	10:37	16:15	22:37	D	F 2	2:01	8:57	14:21	21:00
		2.2	0.5	1.9	0.3			2.1	0.6	1.6	0.5			2.1	0.5	1.6	0.6
A	W 3	3:43	10:19	16:07	22:27	S	S 3	4:35	11:32	17:13	23:27	S	S 3	2:54	9:55	15:28	21:57
		2.2	0.5	1.7	0.4			2.2	0.5	1.5	0.5			2.1	0.6	1.5	0.7
N	Th 4	4:32	11:17	17:05	23:17	M	S 4	5:25	12:20	18:04	24:04	N	S 4	3:49	10:50	16:28	22:53
		2.2	0.5	1.6	0.4			2.3	0.4	1.6	0.5			2.1	0.5	1.6	0.6
O	F 5	5:20	12:08	17:57	24:04	N	M 5	0:16	6:12	13:04	18:49	O	M 5	4:44	11:43	17:25	23:43
		2.2	0.5	1.6	0.4			0.5	2.4	0.3	1.7			2.2	0.4	1.7	0.5
C	S 6	0:03	6:04	12:53	18:42	E	Tu 6	1:01	6:57	13:45	19:30	C	Tu 6	5:38	12:30	18:14	24:00
		0.4	2.3	0.4	1.6			0.4	2.5	0.1	1.9			2.3	0.3	1.8	0.5
P	S 7	0:47	6:45	13:35	19:21	C	W 7	1:44	7:42	14:24	20:10	P	W 7	0:34	6:27	13:10	19:00
		0.4	2.4	0.3	1.7			0.3	2.6	0.0	2.1			0.3	2.4	0.1	2.0
E	M 8	1:29	7:27	14:14	19:58	P	Th 8	2:25	8:24	15:07	20:50	E	Th 8	1:21	7:13	13:56	19:42
		0.4	2.5	0.1	1.8			0.2	2.7	-0.1	2.3			0.2	2.6	0.0	2.3
C	Tu 9	2:08	8:06	14:53	20:36	E	F 9	3:08	9:08	15:48	21:30	C	F 9	2:05	7:59	14:36	20:23
		0.4	2.6	0.0	1.9			0.0	2.8	-0.2	2.4			0.0	2.7	-0.1	2.5
P	W 10	2:45	8:47	15:32	21:14	C	S 10	3:52	9:50	16:26	22:15	P	S 10	2:50	8:43	15:15	21:05
		0.3	2.7	-0.1	2.0			0.0	2.9	-0.2	2.6			-0.1	2.8	-0.2	2.7
S	Th 11	3:25	9:28	16:16	21:53	P	S 11	4:39	10:39	17:08	23:01	S	S 11	3:34	9:28	15:55	21:50
		0.3	2.8	-0.2	2.2			-0.1	2.8	-0.2	2.7			-0.3	2.8	-0.2	2.8
E	F 12	4:07	10:11	16:57	22:38	E	M 12	5:28	11:22	17:53	23:50	E	M 12	4:22	10:14	16:38	22:35
		0.2	2.8	-0.2	2.3			-0.1	2.7	-0.1	2.7			-0.3	2.7	-0.2	2.9
C	S 13	4:55	10:55	17:40	23:25	C	Tu 13	6:23	12:09	18:40	24:40	C	Tu 13	5:12	11:00	17:22	23:25
		0.2	2.7	-0.1	2.4			0.0	2.5	0.0	2.4			-0.3	2.6	-0.1	2.9
P	S 14	5:46	11:42	18:28	24:14	P	W 14	0:42	7:22	13:00	19:32	P	W 14	6:05	11:49	18:10	24:00
		0.2	2.6	-0.1	2.5			2.7	0.1	2.3	0.1			-0.2	2.4	0.0	2.9
S	M 15	0:15	6:42	12:30	19:12	S	Th 15	1:38	8:26	13:57	20:31	S	Th 15	0:20	7:05	12:42	19:08
		2.5	0.2	2.5	0.0			2.6	0.1	2.1	0.2			2.8	-0.1	2.2	0.1
E	Tu 16	1:08	7:42	13:22	20:02	E	F 16	2:38	9:29	15:05	21:35	E	F 16	1:15	8:05	13:45	20:14
		2.5	0.2	2.3	0.1			2.6	0.2	1.9	0.3			2.7	0.0	2.0	0.2
C	W 17	2:05	8:47	14:18	20:56	C	S 17	3:42	10:35	16:20	22:40	C	S 17	2:19	9:13	14:58	21:23
		2.6	0.2	2.1	0.2			2.6	0.2	1.8	0.2			2.6	0.2	1.9	0.3
P	Th 18	3:02	9:51	15:22	21:55	P	S 18	4:46	11:38	17:30	23:43	P	S 18	3:25	10:15	16:10	22:30
		2.6	0.2	2.0	0.2			2.6	0.2	1.9	0.2			2.5	0.2	1.9	0.3
S	F 19	4:02	10:52	16:32	22:56	S	M 19	5:48	12:37	18:34	24:40	S	M 19	4:38	11:20	17:22	23:35
		2.6	0.2	1.9	0.2			2.6	0.1	1.9	0.2			2.4	0.2	1.9	0.2
E	S 20	5:02	11:52	17:38	23:55	E	Tu 20	0:42	6:46	13:30	19:29	E	Tu 20	5:38	12:19	18:22	23:25
		2.7	0.1	1.9	0.1			0.1	2.7	0.0	2.1			2.4	0.1	2.0	0.2
C	S 21	6:01	12:50	18:39	24:40	C	W 21	1:38	7:40	14:17	20:18	C	W 21	0:32	6:38	13:10	19:16
		2.8	0.0	1.9	0.1			0.0	2.7	-0.1	2.2			0.1	2.4	0.1	2.1
P	M 22	0:52	6:57	13:44	19:36	P	Th 22	2:28	8:29	15:00	21:01	P	Th 22	1:25	7:30	13:56	20:00
		0.1	2.8	-0.1	2.0			-0.1	2.7	-0.1	2.3			0.0	2.5	0.0	2.3
S	Tu 23	1:46	7:50	14:33	20:28	S	F 23	3:15	9:15	15:45	21:43	S	F 23	2:14	8:15	14:40	20:40
		0.0	2.9	-0.2	2.1			-0.1	2.6	-0.1	2.4			0.0	2.5	0.0	2.4
E	W 24	2:38	8:40	15:22	21:17	E	S 24	4:02	9:58	16:25	22:24	E	S 24	3:00	8:57	15:18	21:18
		-0.1	2.9	-0.3	2.2			-0.1	2.5	-0.1	2.4			-0.1	2.4	0.0	2.4
C	Th 25	3:29	9:29	16:07	22:05	C	S 25	4:48	10:40	17:08	23:04	C	S 25	3:40	9:37	15:57	21:53
		-0.1	2.8	-0.3	2.3			0.0	2.4	0.0	2.4			0.0	2.4	0.0	2.5
P	F 26	4:20	10:17	16:53	22:52	P	M 26	5:34	11:20	17:50	23:45	P	M 26	4:25	10:15	16:35	22:28
		0.0	2.7	-0.2	2.3			0.1	2.3	0.1	2.4			0.0	2.2	0.1	2.4
S	S 27	5:10	11:04	17:40	23:38	S	Tu 27	6:22	12:01	18:33	24:40	S	Tu 27	5:07	10:51	17:12	23:06
		0.0	2.6	-0.1	2.3			0.2	2.1	0.3	2.4			0.1	2.1	0.3	2.4
E	S 28	6:01	11:51	18:26	24:28	E	W 28	0:28	7:18	12:42	19:18	E	W 28	5:52	11:25	17:51	23:45
		0.1	2.4	0.0	2.4			2.3	0.4	1.9	0.4			0.2	2.0	0.4	2.3
C	M 29	0:25	6:54	12:38	19:18	C						C	Th 29	6:38	12:00	18:30	24:00
		2.3	0.3	2.2	0.1									0.3	1.9	0.6	2.4
P	Tu 30	1:13	7:49	13:27	20:02	P						P	F 30	0:28	7:38	12:45	19:15
		2.3	0.4	2.0	0.3									2.3	0.4	1.8	0.7
S	W 31	2:02	8:46	14:20	20:53	S						S	S 31	1:15	8:22	13:36	20:13
		2.2	0.5	1.8	0.4									2.2	0.5	1.7	0.7

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 6<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	2:08 2.1	9:20 0.5	14:38 1.6	21:16 0.7	☾	Tu	1	2:24 2.1	9:30 0.4	15:08 1.9	21:45 0.6	F	1	3:49 2.1	10:30 0.2	16:28 2.4	23:12 0.2	
☾	M	2	3:05 2.1	10:14 0.5	15:50 1.7	22:20 0.6		W	2	3:24 2.1	10:25 0.3	16:09 2.0	22:43 0.4	E	S	2	4:45 2.1	11:20 0.1	17:20 2.6	...
	Tu	3	4:05 2.1	11:05 0.4	16:47 1.8	23:15 0.5		Th	3	4:24 2.2	11:13 0.2	17:02 2.2	23:39 0.2		S	3	0:05 0.0	5:44 2.2	12:10 0.1	18:14 2.8
	W	4	5:02 2.2	11:55 0.3	17:39 2.0	...		F	4	5:22 2.3	12:00 0.1	17:50 2.4	...		M	4	0:55 -0.1	6:40 2.2	13:00 0.0	19:05 3.0
	Th	5	0:05 0.3	5:55 2.8	12:40 0.1	18:26 2.3	E	S	5	0:30 0.0	6:15 2.4	12:45 0.0	18:40 2.7		Tu	5	1:48 -0.3	7:34 2.3	13:48 -0.1	19:38 3.1
	F	6	0:56 0.1	6:46 2.5	13:21 0.0	19:09 2.5		S	6	1:20 -0.2	7:06 2.4	13:30 -0.1	19:28 2.9	P	W	6	2:38 -0.4	8:25 2.3	14:38 -0.1	20:50 3.1
	S	7	1:43 -0.1	7:35 2.6	14:02 -0.1	19:52 2.7		M	7	2:09 -0.3	7:54 2.5	14:12 -0.1	20:15 3.1	☾	Th	7	3:30 -0.4	9:16 2.3	15:30 -0.1	21:37 3.1
E	S	8	2:30 -0.8	8:19 2.7	14:42 -0.2	20:42 2.9	☾	Tu	8	2:58 -0.5	8:46 2.5	14:58 -0.1	21:04 3.1	S	F	8	4:20 -0.4	10:11 2.3	16:24 0.0	22:32 3.0
☾	M	9	3:16 -0.4	9:15 2.7	15:25 -0.2	21:25 3.0		W	9	3:48 -0.5	9:31 2.6	15:50 -0.1	21:52 3.1		S	9	5:14 -0.4	11:05 2.8	17:20 0.0	23:22 2.9
P	Tu	10	4:05 -0.4	9:54 2.6	16:08 -0.1	22:14 3.0		Th	10	4:40 -0.5	10:24 2.4	16:36 0.0	22:44 3.0		S	10	6:06 -0.3	12:04 2.2	18:20 0.1	...
	W	11	4:55 -0.4	10:40 2.5	16:57 -0.1	23:04 3.0	S	F	11	5:30 -0.4	11:20 2.3	17:32 0.1	23:40 2.9		M	11	0:18 2.7	7:04 -0.2	13:03 2.2	19:24 0.2
	Th	12	5:50 -0.3	11:30 2.4	17:50 0.1	23:58 2.9		S	12	6:28 -0.2	12:20 2.2	18:37 0.2	...	☾	Tu	12	1:16 2.4	8:00 0.0	14:05 2.2	20:28 0.3
	F	13	6:48 -0.2	12:29 2.2	18:50 0.2	...		S	13	0:37 2.7	7:25 -0.1	18:22 2.1	19:40 0.3		W	13	2:20 2.2	8:56 0.1	15:08 2.2	21:32 0.4
S	S	14	0:56 2.7	7:48 0.0	13:35 2.0	19:58 0.8		M	14	1:40 2.5	8:28 0.0	14:30 2.1	20:50 0.3		Th	14	3:25 2.0	9:52 0.1	16:05 2.2	22:32 0.4
☾	S	15	2:00 2.5	8:50 0.1	14:47 2.0	21:06 0.3	☾	Tu	15	2:45 2.3	9:38 0.1	15:36 2.1	22:00 0.3	E	F	15	4:29 1.9	10:46 0.2	16:57 2.3	23:32 0.4
	M	16	3:05 2.4	9:55 0.2	15:00 1.9	22:15 0.3		W	16	3:56 2.2	10:28 0.1	16:40 2.1	23:02 0.3		S	16	5:30 1.8	11:36 0.3	17:48 2.3	...
	Tu	17	4:18 2.3	10:57 0.2	17:08 2.0	23:22 0.2		Th	17	5:00 2.1	11:22 0.1	17:34 2.2	23:58 0.3		S	17	0:28 0.4	6:25 1.8	12:24 0.3	18:30 2.4
	W	18	5:24 2.2	11:55 0.1	18:05 2.1	...	E	F	18	6:00 2.0	12:12 0.2	18:21 2.3	...	A	M	18	1:15 0.3	7:10 1.7	13:10 0.3	19:10 2.4
	Th	19	0:20 0.2	6:22 2.2	12:45 0.1	18:52 2.3		S	19	0:46 0.2	6:52 2.0	12:58 0.2	19:04 2.4		Tu	19	1:56 0.3	7:48 1.7	13:50 0.3	19:50 2.5
	F	20	1:12 0.1	7:12 2.2	13:30 0.1	19:35 2.4		S	20	1:35 0.2	7:36 1.9	13:40 0.2	19:42 2.4		W	20	2:35 0.2	8:22 1.7	14:29 0.4	20:26 2.6
E	S	21	1:54 0.1	7:58 2.2	14:11 0.1	20:14 2.4		M	21	2:18 0.1	8:15 1.9	14:17 0.2	20:18 2.5	☾	Th	21	3:11 0.1	9:00 1.8	15:05 0.4	21:00 2.6
	S	22	2:40 0.0	8:36 2.2	14:48 0.1	20:48 2.5	A	Tu	22	2:56 0.1	8:50 1.8	14:57 0.3	20:54 2.5	N	F	22	3:50 0.1	9:32 1.8	15:40 0.4	21:38 2.6
☾	M	23	3:15 0.0	9:13 2.1	15:26 0.2	21:21 2.5	☾	W	23	3:36 0.1	9:24 1.8	15:32 0.4	21:29 2.5		S	23	4:30 0.0	10:05 1.9	16:17 0.5	22:19 2.6
	Tu	24	4:00 0.0	9:48 2.0	16:04 0.3	21:57 2.5		Th	24	4:15 0.1	9:57 1.9	16:08 0.5	22:04 2.5		S	24	5:12 0.0	10:44 2.0	16:56 0.5	23:00 2.5
A	W	25	4:40 0.1	10:20 2.0	16:38 0.4	22:32 2.5		F	25	4:55 0.1	10:28 1.9	16:37 0.6	22:42 2.5		M	25	5:51 0.0	11:30 2.1	17:45 0.5	23:42 2.4
	Th	26	5:22 0.2	10:55 1.9	17:10 0.6	23:10 2.4	N	S	26	5:40 0.1	11:08 1.9	17:15 0.7	23:23 2.4		Tu	26	6:35 0.1	12:15 2.2	18:38 0.5	...
	F	27	6:08 0.2	11:30 1.8	17:45 0.7	23:52 2.3		S	27	6:22 0.2	11:50 1.9	18:02 0.7	...		W	27	0:28 2.4	7:20 0.1	13:10 2.3	19:40 0.4
	S	28	6:55 0.3	12:14 1.8	18:28 0.8	...		M	28	0:08 2.3	7:08 0.2	12:43 2.0	19:02 0.6		Th	28	1:20 2.2	8:10 0.2	14:04 2.4	20:40 0.4
N	S	29	0:38 2.2	7:45 0.4	13:05 1.8	19:28 0.8		Tu	29	0:55 2.3	7:58 0.2	13:40 2.0	20:04 0.6	☾	F	29	2:15 2.2	9:00 0.2	15:00 2.4	21:45 0.3
	M	30	1:28 2.2	8:36 0.4	14:06 1.5	20:38 0.7		W	30	1:50 2.2	8:48 0.3	14:36 2.1	21:10 0.6		S	30	3:12 2.1	9:53 0.2	15:57 2.5	22:45 0.2
							☾	Th	31	2:47 2.1	9:40 0.3	15:32 2.3	22:13 0.4							

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The time use is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☾, new moon; ☽, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.									
Moon.	Day of—		Time and Height						
	W.	Mo.							
S	1		4:16	10:50	16:56	23:42	P	W	1
			2.0	0.3	2.7	0.1			
M	2		5:20	11:42	17:50		S	Th	2
			2.0	0.7	2.3				
Tu	3		6:38	6:20	12:36	18:48	F	3	
			0.0	2.0	0.1	2.9			
P	W	4	1:32	7:16	13:30	19:37	○	S	4
			-0.2	2.1	0.0	8.0			
○	Th	5	2:22	8:10	14:24	20:30	S	5	
			-0.3	2.2	-0.1	8.1			
F	6		3:11	9:08	15:16	21:20	M	6	
			-0.4	2.2	-0.1	8.0			
S	7		4:06	9:50	16:10	22:12	Tu	7	
			-0.4	2.3	-0.1	2.9			
S	8		4:50	10:58	17:35	23:04	E	W	8
			-0.4	2.3	0.0	2.8			
M	9		5:43	11:42	18:02	23:55	Th	9	
			-0.2	2.3	0.1	2.6			
Tu	10		6:35	12:38	19:00		F	10	
			-0.1	2.3	0.2				
W	11		7:26	7:28	13:21	20:00	○	S	11
			2.4	0.0	2.3	0.3			
E	Th	12	1:48	8:20	14:25	20:59	S	12	
			2.1	0.1	2.3	0.4			
○	F	13	2:48	9:15	15:22	22:00	A	M	13
			1.9	0.2	2.2	0.5			
S	14		3:50	10:08	16:15	23:00	Tu	14	
			1.8	0.3	2.2	0.5			
S	15		4:58	11:00	17:02	23:58	W	15	
			1.6	0.4	2.2	0.6			
A	M	16	5:50	11:50	17:54		N	Th	16
			1.6	0.4	2.3				
Tu	17		6:46	6:40	12:35	18:36	F	17	
			0.5	1.6	0.4	2.4			
W	18		1:28	7:21	13:18	19:18	S	18	
			0.4	1.6	0.4	2.4			
N	Th	19	2:05	7:58	14:00	19:58	●	S	19
			0.3	1.7	0.4	2.5			
F	20		2:44	8:28	14:40	20:35	M	20	
			0.1	1.8	0.3	2.6			
●	S	21	3:20	9:05	15:19	21:15	Tu	21	
			0.0	2.0	0.3	2.6			
S	22		4:00	9:43	15:58	21:55	W	22	
			0.0	2.1	0.3	2.6			
M	23		4:42	10:20	16:40	22:38	E	Th	23
			-0.1	2.2	0.2	2.6			
Tu	24		5:20	11:04	17:25	23:20	F	24	
			-0.1	2.4	0.2	2.5			
W	25		6:03	11:52	18:20		S	25	
			0.0	2.4	0.2				
E	Th	26	6:06	6:45	12:42	19:15	D	S	26
			2.4	0.1	2.5	0.2			
F	27		6:55	7:32	13:36	20:18	P	M	27
			2.3	0.1	2.5	0.2			
D	S	28	1:46	8:25	14:31	21:20	Tu	28	
			2.2	0.2	2.5	0.2			
S	29		2:45	9:24	15:30	22:20	S	W	29
			2.0	0.2	2.6	0.2			
M	30		3:51	10:23	16:32	23:24	Th	30	
			1.9	0.3	2.6	0.2			
Tu	31		5:04	11:24	17:32		F	31	
			1.9	0.2	2.7				

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 ●, new moon; D, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.										NOVEMBER.										DECEMBER.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.							
Mon.	Day of— W. Mo.	Time and Height of High and Low Water.				Mon.	Day of— W. Mo.	Time and Height of High and Low Water.				Mon.	Day of— W. Mo.	Time and Height of High and Low Water.			
	M 1	3:38	10:08	15:55	22:25	☾ Th	1	4:27	10:58	16:50	23:10	A Th	1	2:56	9:20	15:15	21:29
		6.8	0.9	6.4	0.7			6.7	1.1	5.9	1.3			7.1	0.6	6.3	1.0
F	Tu 2	4:28	11:05	16:50	23:17	A F	2	5:16	11:51	17:40	23:55	F	2	3:40	10:05	16:00	22:13
D		6.6	1.1	6.0	1.0			6.6	1.2	5.7	1.4			6.9	0.8	6.1	1.2
	W 3	5:18	12:01	17:43	23:55	S	3	6:06	12:44	18:34	24:44	D S	3	4:29	10:55	16:50	23:02
		6.5	1.2	5.8	1.1			6.6	1.0	5.8	1.1			6.7	0.9	6.0	1.3
A	Th 4	0:07	6:08	12:55	18:36	S	4	0:45	6:56	13:31	19:24	S	4	5:18	11:46	17:45	23:58
		1.2	6.5	1.1	5.7			1.3	6.8	0.8	6.0			6.7	0.9	6.0	1.3
	F 5	0:54	6:55	13:42	19:20	M	5	1:38	7:46	14:20	20:15	N M	5	6:11	12:42	18:41	24:51
		1.3	6.6	1.0	5.8			1.1	7.1	0.4	6.4			6.8	0.7	6.3	1.1
	S 6	1:39	7:40	14:23	20:11	N Tu	6	2:25	8:38	15:04	21:04	Tu	6	0:56	7:08	13:39	19:39
		1.2	6.8	0.7	6.0			0.8	7.4	0.0	6.9			1.0	7.0	0.4	6.6
	S 7	2:20	8:25	15:01	20:55	W	7	3:15	9:23	15:49	21:50	W	7	1:54	8:03	14:29	20:32
		1.0	7.1	0.8	6.3			0.4	7.8	-0.5	7.4			0.7	7.3	0.0	7.1
	M 8	3:02	9:09	15:40	21:37	Th	8	4:00	10:09	16:31	22:35	Th	8	2:47	8:55	15:18	21:22
		0.8	7.5	0.0	6.7			-0.1	8.1	-0.8	7.9			0.2	7.7	-0.5	7.7
N	Tu 9	3:44	9:52	16:18	22:18	○ F	9	4:46	10:54	17:10	23:20	F	9	3:38	9:45	16:05	22:11
○		0.5	7.8	-0.4	7.1			-0.5	8.4	-1.1	8.3			-0.3	8.1	-0.9	8.2
	W 10	4:25	10:35	17:00	23:00	S	10	5:33	11:39	17:59	24:33	○ S	10	4:25	10:32	16:49	22:56
		0.2	8.0	-0.7	7.5			-0.7	8.5	-1.2	8.3			-0.8	8.4	-1.2	8.6
	Th 11	5:08	11:18	17:40	23:44	S	11	0:06	6:18	12:25	18:44	E S	11	5:12	11:19	17:34	23:43
		-0.1	8.2	-0.9	7.8			8.5	-0.9	8.5	-1.2			-1.2	8.6	-1.3	8.9
	F 12	5:51	12:00	18:22	24:33	E M	12	0:58	7:08	13:11	19:29	P M	12	6:00	12:05	18:20	24:33
		-0.3	8.3	-1.0	7.5			8.6	-0.9	8.3	-1.0			-1.3	8.6	-1.3	8.9
	S 13	0:23	6:36	12:45	19:06	P Tu	13	1:40	7:55	13:59	20:15	Tu	13	0:30	6:48	12:51	19:05
		8.0	-0.4	8.2	-1.0			8.5	-0.7	8.0	-0.6			8.9	-1.3	8.4	-1.0
	S 14	1:15	7:25	13:32	19:52	W	14	2:30	8:48	14:50	21:05	W	14	1:18	7:37	13:41	19:55
		8.1	-0.4	8.0	-0.8			8.3	-0.5	7.5	-0.2			8.7	-1.0	8.0	-0.6
	M 15	2:03	8:15	14:20	20:39	☾ Th	15	3:21	9:45	15:45	22:01	Th	15	2:07	8:29	14:31	20:45
		8.1	-0.3	7.8	-0.5			8.0	-0.1	7.1	0.2			8.4	-0.7	7.5	-0.1
E	Tu 16	2:54	9:08	15:12	21:30	F	16	4:18	10:45	16:45	23:05	F	16	3:00	9:26	15:29	21:45
☾		8.0	-0.1	7.5	-0.2			7.6	0.2	6.7	0.7			7.9	-0.2	7.0	0.5
	W 17	3:45	10:06	16:08	22:24	S	17	5:19	11:54	17:55	24:19	☾ S	17	3:58	10:29	16:32	22:50
		7.8	0.1	7.1	0.1			7.3	0.4	6.3	0.8			7.4	0.2	6.5	0.9
	Th 18	4:42	11:08	17:08	23:26	S	18	0:13	6:25	13:07	19:05	S	18	5:03	11:41	17:42	24:07
		7.6	0.2	6.8	0.4			0.9	7.1	0.5	6.2			7.0	0.6	6.2	0.8
	F 19	5:44	12:12	18:12	24:33	S M	19	1:29	7:31	14:15	20:16	M	19	0:09	6:10	12:57	18:58
		7.5	0.3	6.6	0.5			0.9	7.1	0.2	6.4			1.1	6.7	0.6	6.1
P	S 20	0:29	6:48	13:22	19:20	Tu	20	2:39	8:35	15:18	21:19	Tu	20	1:29	7:23	14:07	20:11
		0.6	7.4	0.2	6.5			0.7	7.2	-0.1	6.7			1.0	6.7	0.4	6.3
	S 21	1:35	7:46	14:25	20:25	W	21	3:39	9:33	16:12	22:11	W	21	2:41	8:30	15:08	21:10
		0.6	7.6	0.0	6.6			0.4	7.4	-0.3	7.0			0.7	6.8	0.1	6.7
S	M 22	2:40	8:46	15:26	21:25	Th	22	4:30	10:25	16:56	22:58	Th	22	3:37	9:26	15:57	21:56
		0.4	7.7	-0.3	6.9			0.1	7.6	-0.5	7.3			0.3	7.1	-0.1	7.1
	Tu 23	3:41	9:43	16:20	22:21	● F	23	5:16	11:11	17:39	23:38	F	23	4:23	10:15	16:40	22:35
		0.2	7.9	-0.6	7.2			-0.1	7.6	-0.5	7.5			0.0	7.2	-0.3	7.3
●	W 24	4:38	10:35	17:10	23:14	S	24	6:00	11:53	18:19	24:19	● S	24	5:02	10:55	17:15	23:10
		0.0	8.0	-0.8	7.3			-0.2	7.6	-0.4	7.3			-0.2	7.3	-0.2	7.5
	Th 25	5:28	11:25	17:58	24:19	E S	25	0:18	6:40	12:35	18:56	E S	25	5:36	11:32	17:50	23:48
		-0.1	8.0	-0.8	7.3			7.6	-0.1	7.4	-0.2			-0.2	7.3	-0.1	7.6
	F 26	0:00	6:16	12:14	18:43	M	26	0:55	7:18	13:15	19:34	M	26	6:13	12:10	18:24	24:07
		7.4	-0.1	7.8	-0.6			7.6	0.0	7.2	0.1			-0.2	7.2	0.0	7.3
	S 27	0:45	7:03	13:00	19:26	Tu	27	1:35	7:56	13:55	20:10	Tu	27	0:24	6:46	12:45	18:58
		7.5	0.0	7.6	-0.4			7.4	0.2	6.9	0.4			7.6	-0.1	7.0	0.3
	S 28	1:30	7:50	13:47	20:12	W	28	2:14	8:37	14:35	20:48	A W	28	1:00	7:20	13:20	19:30
		7.4	0.2	7.2	0.0			7.3	0.4	6.6	0.7			7.5	0.0	6.9	0.5
E	M 29	2:14	8:36	14:32	20:52									1:38	8:00	13:58	20:05
		7.2	0.5	6.8	0.3									7.4	0.2	6.7	0.7
	Tu 30	2:56	9:24	15:18	21:35									2:16	8:38	14:36	20:44
		7.0	0.7	6.4	0.7									7.2	0.4	6.5	1.0
	W 31	3:42	10:10	16:02	22:20									3:26	9:25	15:20	21:30
		6.8	1.0	6.1	1.1									7.1	0.5	6.3	1.1

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●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
P	S 1	5:58 6.8	12:15 0.3	18:32 7.6		S	W 1	1:56 0.1	7:48 6.5	14:12 0.6	20:17 7.5	O	S 1	8:52 -0.4	9:53 7.0	16:15 0.0	22:08 7.6
	M 2	1:07 0.1	7:00 6.8	13:19 0.3	19:33 7.8		Th 2	3:01 -0.2	8:57 6.8	15:18 0.3	21:19 7.7		S 2	4:42 -0.6	10:42 7.4	17:04 -0.3	22:57 7.7
	Tu 3	2:10 -0.2	8:05 6.9	14:22 0.2	20:32 8.0		F 3	3:48 -0.5	9:59 7.1	16:16 0.0	22:14 7.9		M 3	5:28 -0.7	11:25 7.6	17:49 -0.4	23:12 7.7
S	W 4	3:12 -0.5	9:05 7.1	15:22 0.0	21:28 8.2	O	S 4	4:52 -0.8	10:52 7.4	17:09 -0.2	23:06 8.0	E	Tu 4	6:08 -0.6	12:06 7.7	18:30 -0.4	
	Th 5	4:08 -0.8	10:05 7.3	16:20 -0.1	22:24 8.3		S 5	5:40 -0.9	11:42 7.5	18:01 -0.3	23:56 7.9		W 5	0:23 7.5	6:48 -0.4	12:43 7.6	19:12 -0.2
	F 6	5:00 -1.0	11:00 7.5	17:15 -0.2	23:17 8.8		M 6	6:27 -0.8	12:28 7.6	18:48 -0.2			Th 6	1:05 7.2	7:27 0.0	18:22 7.5	19:58 0.0
C	S 7	5:52 -1.1	11:55 7.6	18:10 -0.2		E	Tu 7	0:43 7.7	7:13 -0.6	13:12 7.5	19:38 0.0	A	F 7	1:44 6.9	8:05 0.4	14:02 7.2	20:35 0.4
	S 8	0:10 8.1	6:43 -1.0	12:46 7.5	19:06 -0.1		W 8	1:30 7.4	7:59 -0.2	13:57 7.4	20:28 0.2		S 8	2:24 6.5	8:42 0.8	14:42 7.0	21:20 0.7
	M 9	1:02 7.8	7:36 -0.7	13:39 7.3	20:00 0.1		Th 9	2:17 7.0	8:44 0.2	14:43 7.1	21:17 0.5		S 9	3:05 6.2	9:20 1.2	15:27 6.7	22:05 0.9
E	Tu 10	1:52 7.4	8:27 -0.3	14:30 7.1	20:58 0.4	C	F 10	3:00 6.5	9:31 0.7	15:27 6.9	22:08 0.8	N	M 10	3:48 5.9	10:05 1.5	16:12 6.5	22:54 1.2
	W 11	2:49 6.9	9:22 0.1	15:24 6.9	22:00 0.6		S 11	3:48 6.1	10:17 1.1	16:13 6.6	23:04 1.1		Tu 11	4:37 5.7	10:55 1.6	17:02 6.3	23:50 1.2
	Th 12	3:42 6.5	10:16 0.5	16:19 6.7	23:00 0.8		S 12	4:37 5.7	11:06 1.4	17:01 6.4	23:59 1.2		W 12	5:31 5.7	11:51 1.7	17:56 6.4	
C	F 13	4:40 6.1	11:12 0.9	17:10 6.5		A	M 13	5:30 5.5	12:00 1.6	17:52 6.3		E	Th 13	0:45 1.1	6:28 5.8	12:52 1.5	18:52 6.5
	S 14	0:02 0.9	5:45 5.8	12:10 1.1	18:05 6.4		Tu 14	0:54 1.2	6:25 5.5	12:53 1.6	18:45 6.4		F 14	1:35 0.8	7:24 6.2	13:46 1.1	19:46 6.8
	S 15	1:02 0.9	6:45 5.6	13:07 1.3	18:57 6.4		W 15	1:42 1.0	7:20 5.6	13:43 1.5	19:35 6.6		S 15	2:22 0.4	8:15 6.7	14:37 0.6	20:38 7.2
A	M 16	1:55 0.8	7:38 5.6	13:55 1.3	19:41 6.5	N	Th 16	2:26 0.7	8:08 5.9	14:28 1.2	20:22 6.9	M	S 16	3:09 0.0	9:05 7.3	15:25 0.0	21:25 7.7
	Tu 17	2:38 0.6	8:22 5.7	14:35 1.3	20:25 6.7		F 17	3:06 0.4	8:52 6.4	15:10 0.8	21:08 7.3		M 17	3:50 -0.4	9:50 7.9	16:08 -0.5	22:11 8.0
	W 18	3:15 0.5	9:00 5.9	15:10 1.1	21:01 7.0		S 18	3:43 0.0	9:36 7.0	15:50 0.3	21:53 7.6		Tu 18	4:30 -0.8	10:35 8.4	16:54 -0.9	22:56 8.8
N	Th 19	3:47 0.3	9:33 6.2	15:45 0.9	21:40 7.3	●	S 19	4:20 -0.4	10:18 7.4	16:32 -0.1	22:37 8.0	E	W 19	5:13 -1.0	11:20 8.7	17:40 -1.2	23:42 8.4
	F 20	4:20 0.0	10:07 6.7	16:16 0.6	22:20 7.6		M 20	5:00 -0.7	11:02 7.9	17:15 -0.5	23:20 8.2		Th 20	5:55 -1.1	12:05 8.8	18:25 -1.2	
	● S 21	4:53 -0.3	10:47 7.1	16:55 0.8	23:00 7.8		Tu 21	5:38 -0.9	11:45 8.2	17:58 -0.7			F 21	0:26 8.3	6:40 -0.9	12:50 8.7	19:12 -1.1
●	S 22	5:28 -0.5	11:27 7.4	17:36 0.0	23:42 8.0	E	W 22	0:03 8.2	6:20 -1.0	12:28 8.4	18:43 -0.8	S	S 22	1:14 8.0	7:25 -0.6	13:38 8.5	20:02 -0.8
	M 23	6:07 -0.7	12:09 7.7	18:18 -0.2			Th 23	0:47 8.2	7:03 -0.9	13:14 8.5	19:30 -0.8		S 23	2:04 7.6	8:16 -0.2	14:30 8.0	20:56 -0.4
	Tu 24	0:25 8.0	6:47 -0.7	12:52 7.9	19:05 -0.3		F 24	1:33 8.0	7:48 -0.6	14:00 8.3	20:20 -0.6		M 24	2:56 7.2	9:11 0.3	15:24 7.6	21:57 0.1
E	W 25	1:06 7.9	7:27 -0.7	13:37 8.0	19:50 -0.3	D	S 25	2:22 7.6	8:35 -0.8	14:52 8.0	21:12 -0.3	D	Tu 25	3:55 6.7	10:17 0.8	16:26 7.1	23:08 0.5
	Th 26	1:55 7.7	8:12 -0.5	14:23 8.0	20:39 -0.2		S 26	3:13 7.2	9:28 0.2	15:45 7.6	22:11 0.1		W 26	5:05 6.3	11:37 1.2	17:35 6.7	
	F 27	2:41 7.5	9:00 -0.2	15:15 7.8	21:32 0.0		P M 27	4:10 6.8	10:27 0.6	16:43 7.3	23:18 0.4		Th 27	0:28 0.6	6:25 6.1	13:05 1.1	18:54 6.6
D	S 28	3:34 7.2	9:50 0.1	16:08 7.7	22:31 0.2	S	Tu 28	5:15 6.4	11:36 0.9	17:49 7.0		F	F 28	1:45 0.4	7:48 6.8	14:20 0.6	20:08 6.8
	S 29	4:30 6.8	10:47 0.4	17:08 7.5	23:37 0.3		W 29	0:33 0.5	6:27 6.2	12:56 1.0	19:00 7.0		S 29	2:47 0.1	8:50 6.7	15:17 0.2	21:14 7.1
	M 30	5:33 6.6	11:50 0.6	18:08 7.4			Th 30	1:48 0.3	7:46 6.3	14:14 0.8	20:10 7.1		S 30	3:40 -0.2	9:45 7.2	16:08 -0.2	22:04 7.8
	Tu 31	0:48 0.3	6:40 6.5	13:00 0.7	19:13 7.4		F 31	2:56 0.0	8:55 6.6	15:20 0.4	21:14 7.3						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 3.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
Moon.	Day of—	Time and Height of High and Low Water.								Moon.	Day of—	Time and Height of High and Low Water.								Moon.	Day of—	Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 3.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.								
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.				W.	Mo.				W.	Mo.						
E D A	M	1	0:45 3.8	7:05 0.5	12:52 3.9	19:25 0.2	Th	1	1:35 3.7	8:15 1.0	18:36 3.2	20:20 0.8	A Th	1	6:23 0.8	11:45 3.6	18:28 0.8	...
	Tu	2	1:45 3.7	8:08 0.7	13:58 3.6	20:22 0.4	F	2	2:27 3.7	9:12 1.1	14:29 3.0	21:12 0.9	F	2	0:25 3.9	7:13 1.0	12:20 3.4	19:10 1.1
	W	3	2:37 3.8	9:08 0.8	14:49 3.4	21:14 0.5	S	3	3:17 3.8	10:05 4.0	15:29 3.0	22:01 0.9	D S	3	1:14 3.8	8:10 1.1	13:12 3.2	20:04 1.2
	Th	4	3:27 3.8	10:00 0.8	15:45 3.2	22:03 0.5	S	4	4:07 3.9	10:55 0.8	16:28 3.1	22:51 0.8	S	4	2:12 3.7	9:10 1.0	14:20 3.1	21:10 1.1
	F	5	4:12 3.9	10:50 0.8	16:33 3.2	22:47 0.6	M	5	4:55 4.1	11:40 0.6	17:20 3.3	23:33 0.6	N M	5	3:13 3.8	10:08 0.9	15:35 3.2	22:13 0.9
N O	S	6	4:57 4.1	11:35 0.6	17:17 3.2	23:30 0.6	N Tu	6	5:40 4.3	12:21 0.3	18:02 3.6	...	Tu	6	4:12 4.0	11:00 0.6	16:41 3.4	23:08 0.7
	S	7	5:34 4.3	12:15 0.5	17:55 3.3	...	W	7	0:22 0.4	6:25 4.6	13:02 0.0	18:46 3.9	W	7	5:08 4.2	11:48 0.3	17:37 3.8	23:58 0.3
	M	8	0:09 0.5	6:12 4.4	12:54 0.3	18:30 3.5	Th	8	1:05 0.2	7:05 4.8	13:45 -0.3	19:27 4.2	Th	8	5:58 4.6	12:33 -0.1	18:27 4.2	...
	N Tu	9	0:47 0.4	6:50 4.6	13:32 0.1	19:05 3.7	O F	9	1:46 0.0	7:48 5.0	14:28 -0.5	20:10 4.5	F	9	0:45 0.0	6:44 4.8	13:15 -0.4	19:10 4.6
	O W	10	1:23 0.4	7:27 4.8	14:07 -0.1	19:42 3.9	S	10	2:30 -0.1	8:30 5.1	15:03 -0.6	20:58 4.7	O S	10	1:30 -0.2	7:27 5.0	13:56 -0.6	19:58 4.9
P S	Th	11	2:00 0.3	8:06 4.9	14:47 -0.3	20:23 4.2	S	11	3:12 -0.2	9:11 5.1	15:45 -0.6	21:39 4.8	E S	11	2:15 -0.4	8:12 5.2	14:38 -0.7	20:36 5.1
	F	12	2:39 0.3	8:45 4.9	15:27 -0.3	21:07 4.3	E M	12	3:58 -0.1	9:55 5.0	16:28 -0.4	22:26 4.8	P M	12	3:00 -0.5	8:55 5.1	15:20 -0.6	21:22 5.2
	S	13	3:22 0.2	9:28 4.9	16:09 -0.3	21:55 4.4	P Tu	13	4:48 0.0	10:40 4.7	17:13 -0.2	23:17 4.7	Tu	13	3:48 -0.5	9:38 5.0	16:05 -0.5	22:08 5.1
	S	14	4:10 0.2	10:12 4.8	16:53 -0.3	22:45 4.5	W	14	5:43 0.2	11:28 4.4	18:05 0.1	...	W	14	4:38 -0.3	10:25 4.7	16:51 -0.2	22:57 4.9
	M	15	5:01 0.3	10:59 4.7	17:40 -0.1	23:49 4.4	C Th	15	0:11 4.6	6:46 0.4	12:23 4.0	19:05 0.3	Th	15	5:30 -0.1	11:15 4.4	17:45 0.1	23:54 4.7
C E	Tu	16	6:00 0.4	11:50 4.4	18:31 0.1	...	F	16	1:15 4.4	7:58 0.5	18:31 3.7	20:12 0.5	F	16	6:32 0.2	12:11 4.0	18:47 0.4	...
	W	17	0:35 4.4	7:05 0.5	12:46 4.1	19:30 0.2	S	17	2:27 4.3	9:10 0.5	14:55 3.5	21:26 0.4	C S	17	0:54 4.4	7:40 0.4	13:25 3.6	20:00 0.6
	Th	18	1:40 4.3	8:16 0.6	13:50 3.9	20:35 0.3	S	18	3:37 4.3	10:21 0.4	16:17 3.5	22:33 0.3	S	18	2:05 4.2	8:55 0.5	14:52 3.5	21:15 0.6
	F	19	2:48 4.4	9:27 0.5	15:05 3.7	21:42 0.2	S M	19	4:43 4.4	11:25 0.1	17:28 3.7	23:35 0.0	M	19	3:20 4.1	10:05 0.4	16:15 3.5	22:25 0.4
	S	20	3:35 4.5	10:34 0.3	16:21 3.7	22:45 0.1	Tu	20	5:42 4.6	12:20 -0.2	18:28 4.0	...	Tu	20	4:30 4.2	11:08 0.2	17:20 3.8	23:28 0.2
S	S	21	4:55 4.7	11:35 0.0	17:30 3.9	23:43 -0.1	W	21	0:31 -0.2	6:36 4.8	13:09 -0.4	19:17 4.2	W	21	5:30 4.4	12:00 -0.1	18:15 4.1	...
	M	22	5:58 4.9	12:30 -0.3	18:30 4.0	...	Th	22	1:22 -0.3	7:25 4.9	13:55 -0.5	20:00 4.4	Th	22	0:20 -0.1	6:22 4.6	12:49 -0.3	19:00 4.3
	Tu	23	0:40 -0.3	6:47 5.1	13:21 -0.5	19:25 4.2	● F	23	2:09 -0.4	8:10 5.0	14:38 -0.6	20:42 4.5	F	23	1:08 -0.2	7:10 4.7	13:32 -0.4	19:41 4.5
	W	24	1:31 -0.4	7:37 5.2	14:10 -0.7	20:16 4.3	S	24	2:54 -0.3	8:52 4.9	15:18 -0.5	21:21 4.5	● S	24	1:58 -0.3	7:50 4.7	14:11 -0.4	20:17 4.6
	Th	25	2:22 -0.4	8:25 5.2	14:58 -0.7	21:02 4.4	E S	25	3:35 -0.2	9:30 4.7	15:55 -0.3	21:58 4.4	E S	25	2:32 -0.3	8:30 4.6	14:48 -0.3	20:50 4.6
E	F	26	3:12 -0.3	9:11 5.0	15:43 -0.6	21:50 4.4	M	26	4:16 0.0	10:08 4.4	16:35 -0.1	22:35 4.3	M	26	3:10 -0.2	9:08 4.4	15:24 -0.1	21:20 4.6
	S	27	3:59 -0.1	9:57 4.8	16:27 -0.4	22:38 4.3	Tu	27	4:58 0.3	10:42 4.1	17:11 0.2	23:10 4.2	Tu	27	3:48 0.0	9:40 4.2	15:55 0.1	21:54 4.5
	S	28	4:46 0.1	10:40 4.5	17:12 -0.2	23:18 4.1	W	28	5:40 0.6	11:12 3.8	17:48 0.6	23:47 4.0	A W	28	4:24 0.2	10:00 4.0	16:27 0.4	22:24 4.4
	M	29	5:34 0.3	11:23 4.2	17:55 0.1	...							Th	29	5:00 0.4	10:28 3.9	16:54 0.7	22:55 4.3
	Tu	30	0:02 4.0	6:24 0.7	12:05 3.8	18:43 0.4							F	30	5:39 0.6	11:00 3.7	17:22 0.8	23:35 4.2
	W	31	0:47 3.8	7:17 0.9	12:51 3.5	19:30 0.7							S	31	6:22 0.8	11:40 3.6	18:02 1.0	...

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of		Time and Height of High and Low Water.		Moon.	Day of		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	0:20 4.0	7:16 0.9	12:30 3.5	18:57 1.2	1	0:35 4.1	7:33 0.6	13:07 3.7	19:35 1.0	F	1	2:02 4.1	8:50 0.3	14:55 4.2	21:30 0.6			
☾	M	2	1:15 3.9	8:18 0.9	13:35 3.4	20:16 1.2	2	1:35 4.0	8:32 0.6	14:18 3.7	20:54 0.9	E	S	2	3:06 4.1	9:50 0.2	16:00 4.5	22:35 0.3		
	Tu	3	2:20 3.9	9:20 0.8	14:52 3.4	21:32 1.0	3	2:42 4.0	9:33 0.5	15:30 3.9	22:05 0.7	☾	S	3	4:15 4.1	10:50 0.0	17:00 4.8	23:34 0.0		
	W	4	3:28 3.9	10:18 0.6	16:08 3.6	22:39 0.7	4	3:48 4.1	10:30 0.2	16:34 4.3	23:04 0.3	M	4	5:20 4.2	11:46 -0.2	17:57 5.1				
	Th	5	4:31 4.2	11:12 0.2	17:07 4.0	23:38 0.3	E	S	5	4:53 4.3	11:23 -0.1	17:30 4.7	Tu	5	0:32 -0.3	6:20 4.3	12:40 -0.3	18:50 5.3		
	F	6	5:29 4.4	12:00 -0.1	18:00 4.4		S	6	0:00 -0.1	5:50 4.5	12:15 -0.3	18:23 5.1	P	W	6	1:25 -0.6	7:17 4.4	13:34 -0.4	19:42 5.4	
	S	7	0:25 -0.1	6:20 4.7	12:47 -0.4	18:49 4.9	M	7	0:55 -0.4	6:42 4.7	13:06 -0.5	19:11 5.3	☾	Th	7	2:17 -0.8	8:12 4.5	14:27 -0.4	20:32 5.4	
E	S	8	1:13 -0.4	7:09 4.9	13:35 -0.6	19:34 5.2	☾	Tu	8	1:42 -0.7	7:34 4.8	13:58 -0.6	20:00 5.5	S	F	8	3:08 -0.8	9:06 4.5	15:20 -0.3	21:25 5.3
☾	M	9	2:00 -0.6	7:52 5.0	14:15 -0.7	20:20 5.4	W	9	2:32 -0.8	8:24 4.7	14:42 -0.5	20:49 5.5	S	S	9	4:00 -0.8	10:02 4.4	16:14 -0.2	22:16 5.1	
P	Tu	10	2:45 -0.7	8:40 5.0	15:00 -0.6	21:05 5.4	Th	10	3:23 -0.8	9:16 4.6	15:33 -0.4	21:38 5.3	☾	S	10	4:54 -0.7	10:56 4.3	17:10 0.0	23:10 4.8	
	W	11	3:35 -0.7	9:25 4.9	15:46 -0.4	21:52 5.3	S	F	11	4:15 -0.7	10:08 4.4	16:25 -0.1	22:28 5.1	M	11	5:46 -0.5	11:55 4.1	18:10 0.2		
	Th	12	4:26 -0.5	10:15 4.6	16:38 -0.2	22:43 5.1	S	S	12	5:07 -0.5	11:05 4.2	17:21 0.2	23:24 4.8	Tu	12	0:05 4.5	6:43 -0.2	12:54 4.0	19:10 0.4	
	F	13	5:20 -0.3	11:08 4.3	17:33 0.2	23:38 4.7	☾	S	13	6:05 -0.3	12:07 4.0	18:25 0.4		W	13	1:03 4.2	7:39 0.0	13:54 8.9	20:14 0.6	
S	S	14	6:20 0.0	12:10 3.9	18:37 0.5		M	14	0:22 4.4	7:06 0.0	13:15 3.8	19:32 0.5	Th	14	2:05 3.9	8:34 0.2	14:52 3.9	21:15 0.7		
☾	S	15	0:40 4.4	7:25 0.2	13:27 3.6	19:50 0.6	☾	Tu	15	1:29 4.1	8:10 0.1	14:26 3.7	20:42 0.6	E	F	15	3:05 3.7	9:30 0.3	15:46 3.9	22:14 0.7
	M	16	1:50 4.1	8:35 0.3	14:45 3.6	21:05 0.6	W	16	2:38 3.8	9:10 0.2	15:32 3.8	21:50 0.6	S	S	16	4:06 3.5	10:23 0.8	16:36 4.0	23:06 0.7	
	Tu	17	3:04 4.0	9:42 0.3	16:00 3.7	22:10 0.5	Th	17	3:44 3.8	10:09 0.2	16:28 3.9	22:45 0.5	☾	S	17	5:01 3.4	11:12 0.4	17:22 4.1	23:56 0.6	
	W	18	4:10 4.0	10:43 0.2	17:08 3.9	23:15 0.3	E	F	18	4:45 3.8	11:02 0.1	17:18 4.1	23:36 0.4	A	M	18	5:53 3.4	11:55 0.4	18:02 4.2	
	Th	19	5:15 4.1	11:35 0.0	17:55 4.1		S	19	5:38 3.8	11:50 0.1	18:02 4.2		Tu	19	0:40 0.5	6:33 3.4	12:36 0.4	18:40 4.3		
	F	20	0:02 0.1	6:05 4.2	12:23 -0.1	18:35 4.3	S	20	0:25 0.3	6:26 3.8	12:32 0.1	18:40 4.4	W	20	1:20 0.4	7:06 3.4	13:15 0.5	19:15 4.4		
E	S	21	0:50 0.0	6:50 4.3	13:05 -0.2	19:15 4.5	M	21	1:08 0.2	7:07 3.8	13:10 0.1	19:15 4.5	☾	Th	21	1:55 0.2	7:38 3.5	13:46 0.6	19:46 4.5	
	S	22	1:32 -0.1	7:31 4.2	13:45 -0.2	19:49 4.6	A	Tu	22	1:46 0.1	7:40 3.7	13:46 0.2	19:47 4.5	N	F	22	2:30 0.1	8:07 3.6	14:18 0.6	20:20 4.6
☾	M	23	2:12 -0.1	8:05 4.2	14:20 -0.1	20:20 4.6	☾	W	23	2:23 0.1	8:09 3.7	14:17 0.4	20:16 4.5	S	S	23	3:04 0.0	8:36 3.8	14:50 0.6	20:58 4.6
	Tu	24	2:49 -0.1	8:38 4.1	14:51 0.1	20:50 4.6	Th	24	2:55 0.1	8:34 3.7	14:48 0.5	20:45 4.6	☾	S	24	3:40 0.0	9:12 3.9	15:25 0.6	21:31 4.7	
A	W	25	3:23 0.0	9:05 3.9	15:20 0.4	21:18 4.6	F	25	3:30 0.1	8:56 3.8	15:12 0.6	21:17 4.6	M	25	4:19 -0.1	9:55 4.1	16:06 0.5	22:11 4.7		
	Th	26	3:56 0.1	9:26 3.9	15:47 0.6	21:48 4.5	N	S	26	4:05 0.1	9:31 3.8	15:40 0.7	21:50 4.6	Tu	26	4:57 -0.1	10:40 4.2	16:55 0.5	22:55 4.6	
	F	27	4:30 0.3	9:55 3.9	16:10 0.7	22:50 4.5	S	27	4:41 0.2	10:10 3.9	16:22 0.7	22:31 4.5	W	27	5:40 0.0	11:30 4.3	17:45 0.5	23:40 4.5		
	S	28	5:07 0.4	10:32 3.8	16:44 0.8	23:00 4.4	M	28	5:20 0.2	10:55 4.0	17:05 0.7	23:18 4.5	Th	28	6:25 0.1	12:22 4.4	18:42 0.6			
N	S	29	5:47 0.5	11:15 3.8	17:29 0.9	23:45 4.3	Tu	29	6:05 0.2	11:45 4.0	18:08 0.7		☾	F	29	0:32 4.3	7:15 0.2	13:22 4.4	19:50 0.6	
	M	30	6:35 0.6	12:05 3.8	18:25 1.0		W	30	0:05 4.3	6:56 0.3	12:44 4.0	19:05 0.8	S	30	1:28 4.2	8:13 0.2	14:24 4.5	21:01 0.5		
							☾	Th	31	1:00 4.2	7:48 0.4	13:48 4.1	20:17 0.7							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.  
 ☾, new moon; ☽, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	S 1	2:32	9:10	15:25	22:08	P	W 1	4:37	11:05	17:13	23:58	S	1	0:38	6:42	12:55	18:55
		4.1	0.3	4.6	0.3			3.8	0.3	4.8	—0.1			—0.3	4.2	—0.1	4.8
	M 2	3:40	10:15	16:30	23:12	S	Th 2	5:50	12:09	18:12	..	☾	S 2	1:29	7:35	13:49	19:45
		4.0	0.2	4.8	0.1			3.9	0.1	4.9	..			—0.4	4.4	—0.2	4.9
	Tu 3	4:50	11:18	17:30	..		F 3	0:55	6:55	13:07	19:10		M 3	2:15	8:19	14:34	20:30
		4.0	0.1	6.0	..			—0.3	4.1	—0.1	5.0			—0.5	4.5	—0.3	4.8
P	W 4	0:12	6:00	12:20	18:26	☾	S 4	1:45	7:50	14:02	20:00		Tu 4	2:58	9:00	15:20	21:15
		—0.2	4.1	0.0	5.1			—0.5	4.8	—0.2	5.1			—0.4	4.5	—0.2	4.7
☾	Th 5	1:10	7:03	13:18	19:21		S 5	2:35	8:42	14:53	20:50	E	W 5	3:42	9:41	16:04	21:54
		—0.5	4.2	—0.2	5.2			—0.7	4.4	—0.3	5.1			—0.3	4.5	0.0	4.4
	F 6	2:02	8:00	14:20	20:14		M 6	3:22	9:28	15:42	21:37		Th 6	4:21	10:19	16:48	22:34
		—0.7	4.3	—0.3	5.3			—0.7	4.5	—0.2	4.9			—0.1	4.4	0.2	4.2
	S 7	2:54	8:56	15:07	21:05		Tu 7	4:10	10:15	16:30	22:22		F 7	5:01	10:56	17:33	23:07
		—0.8	4.4	—0.2	5.2			—0.6	4.5	0.0	4.7			0.2	4.3	0.4	3.9
	S 8	3:44	9:48	16:00	21:55	E	W 8	4:55	10:59	17:19	23:05		S 8	5:40	11:35	18:18	23:42
		—0.8	4.4	—0.1	5.0			—0.3	4.4	0.2	4.4			0.5	4.1	0.6	3.6
	M 9	4:35	10:40	16:55	22:45		Th 9	5:40	11:41	18:07	23:50	A	S 9	6:20	12:12	19:07	..
		—0.6	4.8	0.1	4.7			—0.1	4.2	0.4	4.0			0.8	4.0	0.8	..
	Tu 10	5:24	11:30	17:48	23:37		F 10	6:25	12:24	19:00	..	☾	M 10	0:20	6:58	12:56	19:58
		—0.5	4.2	0.3	4.4			0.3	4.1	0.7	..			3.4	1.1	3.9	1.0
	W 11	6:12	12:22	18:45	..	☾	S 11	0:30	7:10	13:09	19:54		Tu 11	1:05	7:46	13:47	20:54
		—0.2	4.1	0.5	..			3.7	0.6	8.9	0.8			3.3	1.2	3.8	1.0
E	Th 12	0:25	7:05	13:15	19:41		S 12	1:15	7:58	13:54	20:48	N	W 12	1:58	8:45	14:42	21:48
		4.1	0.1	4.0	0.7			3.4	0.8	3.8	0.9			3.2	1.2	3.8	0.9
☾	F 13	1:19	7:55	14:03	20:40	A	M 13	1:59	8:49	14:44	21:44		Th 13	3:08	9:47	15:39	22:38
		3.7	0.4	3.9	0.8			3.2	1.0	3.8	1.0			3.2	1.1	3.9	0.7
	S 14	2:12	8:47	14:55	21:38		Tu 14	2:55	9:40	15:34	22:34		F 14	4:06	10:42	16:32	23:22
		3.4	0.6	3.8	0.9			3.1	1.0	3.8	0.9			3.4	0.9	4.1	0.4
	S 15	3:10	9:40	15:44	22:32		W 15	3:48	10:30	16:25	23:20		S 15	5:00	11:30	17:24	..
		3.2	0.7	3.8	0.9			3.1	1.0	4.0	0.7			3.7	0.6	4.3	..
A	M 16	4:07	10:29	16:30	23:23	N	Th 16	4:46	11:15	17:11	..		S 16	0:07	5:52	12:20	18:11
		3.1	0.8	3.9	0.8			3.2	0.9	4.2	..			0.2	4.0	0.3	4.6
	Tu 17	5:00	11:14	17:11	..		F 17	0:05	5:35	12:02	17:55		M 17	0:48	6:36	13:02	18:55
		3.1	0.8	4.0	..			0.5	3.4	0.7	4.4			—0.1	4.4	0.1	4.8
	W 18	0:05	5:43	11:57	17:54		S 18	0:45	6:22	12:44	18:40	☾	Tu 18	1:30	7:20	13:50	19:40
		0.7	3.1	0.8	4.2			0.2	3.7	0.5	4.6			—0.3	4.8	—0.2	4.9
N	Th 19	0:44	6:18	12:35	18:30	☾	S 19	1:25	7:05	13:25	19:22	E	W 19	2:11	8:08	14:34	20:24
		0.5	3.3	0.8	4.3			0.0	4.0	0.3	4.8			—0.4	5.0	—0.3	5.0
	F 20	1:20	6:31	13:09	19:06		M 20	2:02	7:45	14:08	20:07		Th 20	2:50	8:52	15:20	21:10
		0.3	3.5	0.7	4.5			—0.2	4.4	0.1	4.9			—0.4	5.1	—0.4	4.9
☾	S 21	1:55	7:30	13:44	19:45		Tu 21	2:40	8:29	14:50	20:47	P	F 21	3:35	9:40	16:09	21:56
		0.1	3.7	0.6	4.7			—0.3	4.6	0.0	5.0			—0.3	5.1	—0.3	4.7
	S 22	2:33	8:07	14:20	20:24		W 22	3:20	9:14	15:35	21:29		S 22	4:20	10:27	17:02	22:46
		—0.1	4.0	0.5	4.8			—0.4	4.8	—0.1	5.0			—0.1	5.0	—0.2	4.5
	M 23	3:10	8:50	15:04	21:06	E	Th 23	4:00	10:00	16:22	22:14		S 23	5:10	11:20	18:00	23:40
		—0.2	4.3	0.3	4.9			—0.4	4.9	—0.1	4.8			0.1	4.8	0.1	4.1
	Tu 24	3:50	9:34	15:48	21:50		F 24	4:45	10:48	17:14	23:02		M 24	6:10	12:18	19:05	..
		—0.3	4.5	0.2	4.9			—0.3	4.9	0.0	4.6			0.4	4.6	0.3	..
	W 25	4:27	10:20	16:36	22:34		S 25	5:29	11:38	18:09	23:52	☾	Tu 25	0:45	7:17	13:23	20:12
		—0.3	4.6	0.2	4.8			0.0	4.8	0.2	4.3			3.8	0.7	4.3	0.4
E	Th 26	5:08	11:08	17:26	23:22	☾	S 26	6:24	12:34	19:12	..		W 26	2:00	8:36	14:32	21:26
		—0.2	4.7	0.2	4.6			0.2	4.7	0.3	..			3.6	0.7	4.2	0.2
	F 27	5:52	12:00	18:22	..	P	M 27	0:49	7:23	13:35	20:21		Th 27	3:26	9:50	15:45	22:30
		—0.1	4.7	0.3	..			4.0	0.4	4.5	0.4			3.6	0.5	4.2	0.2
☾	S 28	0:10	6:43	12:55	19:25		Tu 28	1:56	8:35	14:43	21:36		F 28	4:40	10:55	16:52	23:28
		4.4	0.1	4.6	0.4			3.7	0.6	4.4	0.4			3.8	0.3	4.3	0.0
	S 29	1:05	7:40	13:55	20:35	S	W 29	3:16	9:50	15:53	22:44		S 29	5:37	11:54	17:50	..
		4.2	0.3	4.6	0.5			3.6	0.5	4.4	0.2			4.0	0.1	4.4	..
	M 30	2:05	8:45	15:00	21:50		Th 30	4:39	11:00	17:00	23:43		S 30	0:19	6:28	12:43	18:40
		3.9	0.4	4.6	0.4			3.7	0.3	4.5	0.0			—0.2	4.3	—0.1	4.5
	Tu 31	3:20	9:55	16:08	22:58		F 31	5:46	12:00	18:00	..						
		3.8	0.4	4.6	0.2			3.9	0.0	4.7	..						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☾, new moon; ☽, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.										
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.						W.	Mo.						W.	Mo.						
E D A	M	1	0:14 4.1	6:20 0.7	12:18 4.1	18:40 0.4	D A N O E C P S E	Th	1	0:55 4.0	7:05 1.1	12:58 8.4	19:12 1.0	A D N O P E A	Th	1	5:27 0.8	11:23 8.7	17:30 0.9	23:58 4.0		
	Tu	2	1:02 4.0	7:10 1.0	13:07 3.8	19:27 0.7		F	2	1:43 3.9	7:50 1.2	13:48 3.2	20:00 1.1		F	2	6:10 1.0	12:00 3.5	18:08 1.0			
	W	3	1:52 4.0	8:06 1.1	13:59 3.5	20:12 0.8		S	3	2:34 3.9	8:56 1.2	14:44 3.2	20:52 1.1		S	3	0:44 3.9	7:01 1.1	12:46 3.3	18:54 1.2		
	Th	4	2:40 4.0	9:00 1.1	14:53 3.5	21:00 0.8		S	4	3:34 4.0	9:56 1.0	15:44 3.3	21:52 1.0		S	4	1:38 3.8	8:00 1.1	13:49 3.2	19:55 1.2		
	F	5	3:28 4.0	9:52 1.0	15:47 3.3	21:48 0.9		M	5	4:20 4.2	10:46 0.8	16:44 3.4	22:43 0.9		M	5	2:39 3.9	9:04 1.0	15:01 3.3	21:06 1.1		
N C	S	6	4:15 4.1	10:40 0.9	16:37 3.4	22:34 0.9	N O E P C S E	Tu	6	5:11 4.4	11:35 0.5	17:37 3.7	23:35 0.6	T W Th F O S E P	Tu	6	3:41 4.1	10:05 0.8	16:08 3.5	22:12 0.9		
	S	7	4:59 4.3	11:27 0.7	17:25 3.5	23:18 0.8		W	7	5:59 4.7	12:22 0.2	18:25 4.0			W	7	4:38 4.8	11:00 0.4	17:07 3.9	23:11 0.6		
	M	8	5:44 4.6	12:09 0.5	18:08 3.6			Th	8	6:23 0.4	6:45 4.9	13:07 —0.1	19:11 4.3		Th	8	5:31 4.6	11:51 0.1	18:00 4.3			
	Tu	9	6:01 0.8	6:26 4.7	12:50 0.2	18:48 3.8		O	F	9	1:11 0.2	7:30 5.1	13:50 —0.4		19:57 4.6	F O	F	9	0:04 0.2	6:21 4.9	12:39 —0.3	18:49 4.7
	W	10	0:43 0.5	7:09 4.9	13:32 0.0	19:31 4.0			S	10	1:57 0.0	8:15 5.1	14:34 —0.5		20:42 4.7		S	10	0:55 —0.1	7:08 5.1	13:24 —0.5	19:35 5.0
E C	Th	11	1:25 0.4	7:50 5.0	14:13 —0.2	20:14 4.2	E P C S E	S	11	2:45 —0.1	8:58 5.1	15:18 —0.5	21:29 4.8	E P C S E	S	11	1:42 —0.3	7:54 5.2	14:09 —0.6	20:21 5.2		
	F	12	2:08 0.3	8:31 5.0	14:55 —0.3	20:58 4.3		M	12	3:32 —0.1	9:48 4.9	16:03 —0.4	22:16 4.9		M	12	2:30 —0.4	8:41 5.2	14:53 —0.6	21:08 5.2		
	S	13	2:54 0.3	9:15 4.9	15:39 —0.3	21:45 4.4		Tu	13	4:22 0.0	10:31 4.7	16:48 —0.2	23:06 4.8		Tu	13	3:19 —0.4	9:28 5.0	15:39 —0.4	21:55 5.2		
	S	14	3:42 0.3	10:00 4.8	16:24 —0.2	22:35 4.5		W	14	5:16 0.2	11:22 4.4	17:38 0.1			W	14	4:08 —0.3	10:17 4.8	16:27 —0.2	22:46 5.0		
	M	15	4:34 0.4	10:46 4.6	17:10 —0.1	23:28 4.5		C	Th	15	6:02 4.7	6:15 0.4	12:20 4.1		18:35 0.8	Th	15	5:02 —0.1	11:10 4.5	17:18 0.2	23:41 4.7	
Tu	16	5:30 0.5	11:37 4.4	18:00 0.1		F	16		1:03 4.5	7:20 0.5	13:25 3.9	19:38 0.5	F	16	6:00 0.2	12:08 4.1	18:18 0.5					
E C	W	17	6:23 4.5	6:30 0.6	12:35 4.1	18:56 0.8	S M P S E	S	17	2:07 4.4	8:31 0.6	14:39 3.7	20:48 0.6	C S M T W E	S	17	0:41 4.5	7:05 0.4	13:16 3.8	19:24 0.7		
	Th	18	1:25 4.5	7:38 0.6	13:40 3.9	19:53 0.4		S	18	3:13 4.5	9:42 0.5	15:55 3.8	21:57 0.5		S	18	1:47 4.4	8:15 0.5	14:33 3.7	20:37 0.7		
	F	19	2:28 4.5	8:48 0.6	14:50 3.8	21:04 0.4		M	19	4:17 4.6	10:48 0.3	17:04 3.9	23:00 0.8		M	19	2:55 4.3	9:25 0.6	15:48 3.8	21:47 0.6		
	S	20	3:31 4.6	9:57 0.5	16:03 3.9	22:08 0.3		Tu	20	5:17 4.8	11:46 0.1	18:02 4.1	23:58 0.2		Tu	20	4:01 4.0	10:30 0.4	16:51 4.0	22:50 0.4		
	S	21	4:33 4.8	11:00 0.3	17:10 4.0	23:10 0.2		W	21	6:10 5.0	12:37 —0.1	18:52 4.3			W	21	5:01 4.6	11:25 0.2	17:45 4.2	23:47 0.8		
S E	M	22	5:30 5.0	11:59 0.0	18:11 4.2		E S M T W	Th	22	6:50 0.0	6:59 5.1	13:22 —0.3	19:37 4.5	Th	22	5:55 4.7	12:15 0.0	18:32 4.4				
	Tu	23	0:07 1.0	6:23 5.4	12:52 —0.4	19:05 4.4		●	F	23	1:35 0.0	7:44 5.1	14:04 —0.4	20:19 4.6	●	F	23	0:35 0.1	6:42 4.8	12:58 —0.1	19:13 4.6	
	W	24	1:00 —0.1	7:14 5.4	13:39 —0.4	19:54 4.5			S	24	2:18 0.0	8:26 5.0	14:43 —0.3	20:55 4.6		S	24	1:18 0.0	7:25 4.8	13:37 —0.1	19:50 4.6	
	Th	25	1:49 —0.1	8:01 5.4	14:25 —0.5	20:40 4.6		E	S	25	2:58 0.1	9:05 4.8	15:19 —0.1	21:32 4.5	E	S	25	2:57 0.0	8:02 4.7	14:11 0.0	20:23 4.6	
	F	26	2:37 0.0	8:47 5.2	15:14 —0.4	21:24 4.5			M	26	3:35 0.3	9:41 4.2	15:54 0.4	22:07 4.3		M	26	2:32 0.1	8:38 4.5	14:44 0.1	20:55 4.6	
S	27	3:21 0.1	9:51 5.0	15:51 —0.3	22:05 4.5	Tu	27		4:12 0.5	10:18 4.2	16:27 0.4	22:42 4.3	Tu	27		3:05 0.2	9:11 4.3	15:15 0.3	21:26 4.5			
E	S	28	4:05 0.3	10:13 4.7	16:32 —0.1	22:48 4.3	W	W	28	4:49 0.7	10:50 3.9	16:59 0.7	23:19 4.1	A	W	28	3:40 0.4	9:41 4.0	15:40 0.6	21:58 4.3		
	M	29	4:47 0.6	10:54 4.3	17:11 0.2	23:28 4.2		Th	29						Th	29	4:11 0.5	10:09 3.8	16:07 0.7	22:31 4.2		
	Tu	30	5:30 0.8	11:33 4.0	17:50 0.5			F	30						F	30	4:48 0.7	10:40 3.7	16:37 0.9	23:08 4.1		
	W	31	0:11 4.0	6:16 1.0	12:15 3.7	18:30 0.8		S	31						S	31	5:30 0.7	11:17 3.6	17:17 1.0	23:54 4.0		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.				MAY.				JUNE.			
Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.
	W.	Mo.			W.	Mo.			W.	Mo.	
N	S	1	6:17 12:06 18:06 . . . 0.8 3.5 1.1 . . .	D	Tu	1	0:11 6:43 12:48 18:47 4.0 0.6 3.6 1.0	E	F	1	1:46 8:11 14:41 20:51 4.0 0.4 4.3 0.7
	M	2	0:48 7:15 13:11 19:12 3.9 0.9 3.4 1.2		W	2	1:12 7:45 14:01 20:05 3.9 0.6 3.8 1.0		S	2	2:50 9:14 15:42 21:58 4.0 0.3 4.6 0.4
	Tu	3	1:52 8:21 14:26 20:31 3.9 0.8 3.5 1.1		Th	3	2:20 8:46 15:09 21:18 4.0 0.5 4.0 0.7		S	3	4:01 10:13 16:49 22:59 4.2 0.1 4.9 0.1
	W	4	2:59 9:25 15:37 21:44 4.0 0.6 3.8 0.8		F	4	3:23 9:47 16:10 22:23 4.1 0.3 4.4 0.4		M	4	5:02 11:11 17:34 23:56 4.4 -0.1 5.2 -0.3
	Th	5	4:02 10:24 16:38 22:47 4.2 0.3 4.2 0.5	E	S	5	4:31 10:44 17:06 23:21 4.4 0.1 4.8 0.0		Tu	5	6:00 12:05 18:27 . . . 4.5 -0.3 5.5 . . .
	F	6	5:01 11:18 17:33 23:43 4.5 0.0 4.6 0.1		S	6	5:28 11:38 17:57 . . . 4.6 -0.2 5.2 . . .	P	W	6	0:50 6:55 12:57 19:17 -0.6 4.7 -0.3 5.7
	S	7	5:54 12:08 18:23 . . . 4.8 -0.3 5.0 . . .		M	7	0:15 6:21 12:28 18:47 -0.4 4.8 -0.4 5.5		Th	7	1:41 7:50 13:49 20:09 -0.7 4.7 -0.3 5.7
E	S	8	0:35 6:45 12:55 19:10 -0.3 5.0 -0.5 6.3	☾	Tu	8	1:07 7:13 13:18 19:36 -0.6 4.9 -0.5 5.6		F	8	2:32 8:44 14:41 20:59 -0.7 4.7 -0.2 5.6
☾	M	9	1:25 7:33 13:42 19:58 -0.6 5.1 -0.6 6.4		W	9	1:57 8:04 14:07 20:26 -0.8 5.0 -0.4 5.7		S	9	3:24 9:38 15:34 21:50 -0.7 4.6 0.0 5.3
P	Tu	10	2:14 8:22 14:28 20:45 -0.7 5.1 -0.5 6.5		Th	10	2:47 8:57 14:57 21:16 -0.7 4.9 -0.3 5.5		S	10	4:15 10:31 16:28 22:43 -0.6 4.5 0.2 5.0
	W	11	3:04 9:11 15:17 21:34 -0.7 5.0 -0.4 6.4		F	11	3:39 9:49 15:50 22:07 -0.6 4.7 0.0 5.3		M	11	5:08 11:28 17:27 23:36 -0.3 4.3 0.5 4.7
	Th	12	3:54 10:01 16:07 22:21 -0.5 4.7 -0.1 5.1		S	12	4:32 10:46 16:45 23:02 -0.4 4.4 0.2 5.0		Tu	12	6:02 12:25 18:28 . . . -0.1 4.2 0.7 . . .
	F	13	4:47 10:58 17:00 23:21 -0.3 4.4 0.2 4.9		S	13	5:28 11:46 17:45 23:59 -0.2 4.2 0.5 4.6	☾	W	13	0:33 6:56 13:23 19:31 4.4 0.1 4.1 0.8
S	S	14	5:45 11:58 18:01 . . . 0.0 4.1 0.5 . . .		M	14	6:28 12:51 18:53 . . . 0.0 4.0 0.7 . . .		Th	14	1:32 7:51 14:19 20:34 4.1 0.4 4.1 0.9
☾	S	15	0:21 6:48 13:06 19:10 4.6 0.2 3.9 0.7	☾	Tu	15	1:03 7:28 13:57 20:02 4.4 0.2 4.0 0.8	E	F	15	2:32 8:45 15:12 21:31 3.9 0.6 4.1 0.9
	M	16	1:26 7:54 14:19 20:24 4.4 0.4 3.7 0.8		W	16	2:07 8:30 15:00 21:10 4.2 0.4 4.0 0.8		S	16	3:31 9:37 16:01 22:25 3.7 0.6 4.2 0.9
	Tu	17	2:34 9:01 15:29 21:34 4.3 0.4 3.9 0.7		Th	17	3:11 9:29 15:55 22:09 4.1 0.4 4.2 0.7		S	17	4:26 10:25 16:46 23:12 3.7 0.7 4.3 0.8
	W	18	3:40 10:03 16:29 22:35 4.8 0.4 4.1 0.6	E	F	18	4:11 10:21 16:45 23:00 4.1 0.4 4.3 0.6	A	M	18	5:15 11:09 17:27 23:55 3.6 0.7 4.4 0.7
	Th	19	4:40 10:59 17:18 23:28 4.3 0.3 4.3 0.4		S	19	5:05 11:09 17:27 23:47 4.0 0.4 4.4 0.5		Tu	19	5:59 11:48 18:07 . . . 3.6 0.7 4.5 . . .
	F	20	5:33 11:46 18:03 . . . 4.4 0.2 4.5 . . .		S	20	5:51 11:50 18:06 . . . 4.0 0.4 4.5 . . .		W	20	0:34 6:37 12:23 18:43 0.6 3.6 0.7 4.6
E	S	21	0:14 6:20 12:28 18:42 0.3 4.5 0.1 4.6		M	21	0:28 6:32 12:27 18:41 0.4 4.0 0.4 4.6	☾	Th	21	1:09 7:10 12:58 19:20 0.4 3.7 0.7 4.7
	S	22	0:55 7:01 13:04 19:16 0.2 4.4 0.2 4.7	A	Tu	22	1:04 7:09 13:00 19:15 0.3 3.9 0.5 4.7	N	F	22	1:45 7:43 13:31 19:57 0.3 3.8 0.7 4.7
●	M	23	1:31 7:37 13:37 19:48 0.1 4.3 0.2 4.7	●	W	23	1:38 7:39 13:28 19:48 0.3 3.9 0.6 4.7		S	23	2:21 8:18 14:05 20:38 0.2 3.8 0.7 4.7
	Tu	24	2:05 8:09 14:05 20:19 0.2 4.2 0.4 4.6		Th	24	2:11 8:09 13:57 20:21 0.2 3.8 0.7 4.6		S	24	2:59 8:54 14:44 21:10 0.1 3.9 0.6 4.7
A	W	25	2:38 8:39 14:32 20:50 0.2 4.0 0.6 4.5		F	25	2:44 8:39 14:26 20:54 0.2 3.8 0.7 4.6		M	25	3:38 9:36 15:28 21:51 0.0 4.0 0.6 4.6
	Th	26	3:10 9:06 14:59 21:21 0.3 3.9 0.7 4.5	N	S	26	3:19 9:11 15:00 21:30 0.2 3.8 0.8 4.5		Tu	26	4:19 10:23 16:15 22:35 0.0 4.1 0.6 4.4
	F	27	3:43 9:35 15:28 21:56 0.4 3.8 0.8 4.4		S	27	3:58 9:50 15:41 22:09 0.2 3.8 0.8 4.4		W	27	5:03 11:14 17:08 23:23 0.1 4.2 0.6 4.3
	S	28	4:19 10:09 16:04 22:33 0.5 3.7 0.8 4.2		M	28	4:39 10:35 16:27 22:52 0.3 3.8 0.8 4.3		Th	28	5:50 12:10 18:09 . . . 0.2 4.2 0.7 . . .
N	S	29	5:00 10:51 16:46 23:18 0.5 3.7 0.9 4.1		Tu	29	5:25 11:29 17:21 23:44 0.3 3.8 0.9 4.1	☾	F	29	0:16 6:44 13:11 19:17 4.1 0.3 4.3 0.7
	M	30	5:48 11:44 17:40 . . . 0.6 3.6 1.0 . . .		W	30	6:16 12:30 18:22 . . . 0.4 3.9 0.9 . . .	E	S	30	1:18 7:41 14:14 20:26 4.0 0.4 4.4 0.7
				D	Th	31	0:41 7:11 13:36 19:39 4.0 0.4 4.0 0.8				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W. 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.											
Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.									
	W. Mo.					W. Mo.					W. Mo.										
S	1	2:25	8:44	15:11	21:35	P	W	1	4:32	10:35	16:58	23:26	S	1	0:07	6:24	12:24	18:35			
		3.9	0.3	4.6	0.5				3.9	0.3	4.9	0.1			-0.1	4.4	0.0	5.0			
M	2	3:36	9:48	16:17	22:40	S	Th	2	5:37	11:36	17:55		○	S	2	0:55	7:12	13:13	19:23		
		4.0	0.3	4.8	0.2				4.1	0.1	5.1				-0.3	4.6	-0.1	5.1			
Tu	3	4:42	10:49	17:14	23:39		F	3	0:23	6:36	12:33	18:48		M	3	1:40	7:55	13:58	20:07		
		4.1	0.1	5.1	-0.1				-0.1	4.3	-0.1	5.3			-0.4	4.7	-0.1	5.1			
P	W	5:46	11:47	18:09		○	S	4	1:14	7:28	13:25	19:37		Tu	4	2:21	8:35	14:40	20:48		
		4.2	-0.1	5.4					-0.4	4.5	-0.2	5.4			-0.4	4.8	-0.1	4.9			
S	Th	0:35	6:44	12:43	19:02		S	5	2:01	8:15	14:15	20:24		E	W	5	3:01	9:15	15:21	21:27	
		-0.3	4.4	-0.2	5.5				-0.5	4.7	-0.2	5.4			-0.3	4.8	0.1	4.7			
F	6	1:27	7:39	13:36	19:52		M	6	2:46	9:01	15:02	21:11		Th	6	3:38	9:51	16:00	22:05		
		-0.5	4.6	-0.2	5.6				-0.6	4.7	-0.1	5.2			0.0	4.6	0.2	4.4			
S	7	2:18	8:31	14:28	20:42		Tu	7	3:30	9:45	15:46	21:55		F	7	4:15	10:28	16:40	22:42		
		-0.7	4.7	-0.1	5.5				-0.5	4.7	0.1	4.8			0.3	4.5	0.5	4.0			
S	8	3:06	9:21	15:19	21:32		E	W	8	4:12	10:28	16:30	22:37		S	8	4:49	11:07	17:20	23:19	
		-0.7	4.7	-0.1	5.3				-0.3	4.6	0.3	4.5			0.6	4.2	0.7	3.7			
M	9	3:55	10:12	16:09	22:20		Th	9	4:54	11:11	17:15	23:20		A	S	9	5:23	11:47	18:02	23:56	
		-0.6	4.6	0.1	5.0				0.0	4.4	0.6	4.1			0.9	4.0	0.9	8.5			
Tu	10	4:43	11:01	17:01	23:09		F	10	5:35	11:54	18:02			C	M	10	5:59	12:30	18:31		
		-0.4	4.5	0.4	4.7				0.4	4.2	0.8				1.1	3.9	1.1				
W	11	5:30	11:51	17:54	23:58		C	S	11	0:03	6:17	12:40	18:52		Tu	11	0:41	6:44	13:23	19:47	
		-0.1	4.3	0.6	4.3				3.8	0.7	4.1	1.0			3.3	1.3	3.8	1.1			
E	Th	6:18	12:42	18:48			S	12	0:48	7:01	13:28	19:45		N	W	12	1:38	7:40	14:19	20:47	
		0.2	4.2	0.8					3.5	1.0	3.9	1.2			3.2	1.3	3.8	1.1			
C	F	0:50	7:07	13:32	19:46		A	M	13	1:38	7:48	14:18	20:43		Th	13	2:46	8:47	15:20	21:47	
		3.9	0.5	4.1	1.0				3.2	1.1	3.8	1.2			3.2	1.3	3.9	0.9			
S	14	1:44	7:56	14:22	20:44		Tu	14	2:36	8:40	15:12	21:40		F	14	3:52	9:53	16:17	22:42		
		3.6	0.7	4.0	1.1				3.1	1.2	3.9	1.1			3.4	1.1	4.1	0.6			
S	15	2:42	8:47	15:13	21:40		W	15	3:37	9:35	16:05	22:33		S	15	4:48	10:52	17:10	23:30		
		3.4	0.9	4.0	1.1				3.1	1.2	4.0	1.0			3.7	0.8	4.4	0.3			
A	M	3:33	9:37	16:01	22:32		N	Th	16	4:33	10:30	16:55	23:22		S	16	5:40	11:45	17:58		
		3.3	0.9	4.1	1.0				3.3	1.0	4.2	0.7			4.1	0.4	4.6				
Tu	17	4:32	10:23	16:48	23:19		F	17	5:24	11:22	17:43			M	17	0:17	6:26	12:33	18:46		
		3.3	0.9	4.2	0.9				3.5	0.8	4.5				0.0	4.5	0.1	4.9			
W	18	5:19	11:08	17:32	23:59		S	18	0:06	6:10	12:08	18:28		●	Tu	18	1:00	7:12	13:20	19:30	
		3.4	0.9	4.4	0.7				0.4	3.7	0.6	4.7			-0.3	4.9	-0.2	5.0			
N	Th	6:01	11:51	18:13			●	S	19	0:48	6:53	12:53	19:12		E	W	19	1:43	7:56	14:07	20:15
		3.5	0.8	4.6					0.1	4.2	0.3	4.9			-0.5	5.1	-0.4	5.1			
F	20	0:39	6:40	12:31	18:54		M	20	1:30	7:35	13:37	19:53			Th	20	2:27	8:40	14:52	21:00	
		0.4	3.7	0.7	4.7				-0.2	4.4	0.1	5.0			-0.5	5.2	-0.4	5.0			
●	S	1:18	7:19	13:11	19:34		Tu	21	2:12	8:19	14:21	20:34		P	F	21	3:10	9:26	15:40	21:47	
		0.2	3.9	0.6	4.8				-0.3	4.7	0.0	5.0			-0.4	5.2	-0.3	4.8			
S	22	1:57	7:59	13:52	20:13		W	22	2:53	9:02	15:06	21:17			S	22	3:55	10:14	16:31	22:37	
		0.0	4.1	0.4	4.9				-0.4	4.8	-0.1	4.9			-0.2	5.0	-0.2	4.5			
M	23	2:36	8:38	14:34	20:53		E	Th	23	3:35	9:48	15:54	22:02		S	23	4:44	11:06	17:26	23:32	
		-0.2	4.2	0.4	4.8				-0.3	4.9	0.0	4.7			0.1	4.8	0.1	4.2			
Tu	24	3:16	9:21	15:18	21:34		F	24	4:18	10:35	16:43	22:51			M	24	5:40	12:04	18:27		
		-0.2	4.4	0.3	4.7				-0.2	4.8	0.1	4.5			0.3	4.6	0.3				
W	25	3:58	10:07	16:05	22:18		S	25	5:05	11:27	17:38	23:42		●	Tu	25	0:36	6:43	13:08	19:35	
		-0.2	4.5	0.3	4.6				0.0	4.7	0.3	4.7			3.9	0.6	4.4	0.5			
E	Th	4:41	10:56	16:56	23:04		●	S	26	5:57	12:23	18:40			W	26	1:50	7:55	14:12	20:46	
		-0.1	4.5	0.4	4.4				0.3	4.5	0.5				3.8	0.8	4.3	0.5			
F	27	5:26	11:49	17:53	23:57		P	M	27	0:43	6:57	13:26	19:48		Th	27	3:06	9:12	15:26	21:53	
		0.1	4.5	0.5	4.2				3.9	0.5	4.4	0.6			3.8	0.7	4.4	0.4			
●	S	6:18	12:47	18:55			Tu	28	1:54	8:06	14:33	21:00			F	28	4:17	10:18	16:30	22:53	
		0.3	4.5	0.6					3.7	0.7	4.4	0.6			4.0	0.5	4.5	0.2			
S	29	0:56	7:16	13:49	20:05		S	W	29	3:12	9:17	15:42	22:10		S	29	5:15	11:20	17:28	23:47	
		4.0	0.4	4.5	0.7				3.7	0.6	4.5	0.4			4.2	0.3	4.7	0.0			
M	30	2:05	8:21	14:53	21:16		Th	30	4:26	10:28	16:45	23:13		S	30	6:05	12:12	18:20			
		3.8	0.5	4.5	0.6				3.8	0.4	4.7	0.2			4.5	0.1	4.8				
Tu	31	3:19	9:29	15:57	22:25		F	31	5:30	11:28	17:42										
		3.8	0.5	4.6	0.4				4.1	0.2	4.9										

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.				W.	Mo.				W.	Mo.							
O	M	1	0:33 -0.1	6:50 4.7	12:59 0.0	19:06 4.8	Th	1	1:23 0.2	7:35 4.8	13:54 0.1	20:01 4.2	A	S	1	1:22 0.6	7:40 4.7	14:05 0.3	20:06 3.8
	Tu	2	1:17 -0.2	7:28 4.8	13:40 -0.1	19:46 4.8	F	2	1:57 0.3	8:09 4.7	14:30 0.2	20:34 4.0	S	2	1:58 0.7	8:14 4.6	14:37 0.3	20:35 3.7	
	W	3	1:55 -0.1	8:07 4.8	14:20 0.0	20:25 4.6	S	3	2:25 0.5	8:42 4.6	15:03 0.3	21:06 3.9	N	M	3	2:20 0.8	8:45 4.6	15:11 0.8	21:06 3.7
	Th	4	2:30 0.0	8:40 4.8	14:55 0.1	21:02 4.4	A	S	4	2:54 0.7	9:15 4.5	15:36 0.4	21:34 3.7	Tu	4	2:50 0.9	9:18 4.4	15:48 0.3	21:40 3.7
	F	5	3:02 0.3	9:17 4.6	15:32 0.3	21:35 4.1	M	5	3:21 0.9	9:46 4.3	16:10 0.5	22:08 3.6	W	5	3:28 0.9	9:58 4.3	16:24 0.3	22:20 3.8	
A	S	6	3:34 0.5	9:49 4.4	16:07 0.5	22:06 3.9	N	Tu	6	3:52 1.0	10:20 4.2	16:50 0.6	22:40 3.6	Th	6	4:10 0.9	10:35 4.2	17:06 0.4	23:06 3.8
	S	7	4:02 0.8	10:12 4.3	16:42 0.6	22:36 3.6	W	7	4:30 1.0	11:00 4.1	17:38 0.6	23:28 3.6	F	7	4:59 0.9	11:20 4.1	17:52 0.4	23:52 3.8	
	M	8	4:32 0.9	11:00 4.1	17:21 0.8	23:12 3.5	Th	8	5:20 1.1	11:50 3.9	18:22 0.7	23:52 3.6	C	S	8	5:05 3.9	12:10 0.9	18:42 4.0	24:22 0.5
	Tu	9	5:08 1.1	11:40 3.9	18:06 0.9	23:55 3.4	C	F	9	5:26 3.6	12:22 1.1	19:18 0.7	24:22 3.6	S	9	5:05 4.0	12:10 0.9	18:42 3.9	24:22 0.5
	W	10	5:55 1.2	12:28 3.8	19:00 1.0	24:42 3.4	S	10	5:55 3.7	13:04 1.1	19:49 0.6	24:42 3.6	E	M	10	5:05 4.2	12:10 0.8	18:42 3.8	24:22 0.4
C	Th	11	6:55 3.3	13:28 3.8	20:00 0.9	25:42 3.4	S	11	6:55 3.9	14:08 0.9	20:00 0.5	25:42 3.6	Tu	11	6:05 4.5	13:00 0.6	19:52 4.0	25:12 0.3	
	F	12	7:07 3.4	13:40 1.2	20:10 0.8	25:54 3.4	M	12	7:07 4.3	14:10 0.6	20:10 0.2	25:54 3.6	W	12	6:05 4.7	13:00 0.3	19:52 4.2	25:12 0.1	
	S	13	8:15 3.6	14:50 1.0	21:00 0.6	26:06 3.6	E	Tu	13	8:15 4.6	15:20 0.2	21:00 0.0	26:06 3.6	Th	13	8:15 5.1	14:00 -0.1	19:52 4.3	25:12 -0.1
	S	14	9:15 4.0	15:50 0.7	22:00 0.3	26:18 3.8	W	14	9:15 5.0	16:20 -0.2	21:00 4.9	26:18 3.6	F	14	8:15 5.4	14:00 -0.3	19:52 4.5	25:12 4.7	
	M	15	10:15 4.4	16:50 0.3	23:00 0.0	26:30 4.0	Th	15	10:15 -0.2	17:20 5.3	22:00 -0.4	26:30 4.8	P	S	15	8:15 -0.2	14:00 5.6	19:52 -0.6	25:12 4.7
E	Tu	16	11:15 4.8	17:50 -0.1	24:00 4.8	26:42 4.0	F	16	11:15 -0.4	18:20 5.5	23:00 -0.6	26:42 4.8	S	16	8:15 -0.3	14:00 5.7	19:52 -0.7	25:12 4.7	
	W	17	12:15 -0.3	18:50 5.1	25:00 4.9	26:54 4.2	S	17	12:15 -0.4	19:20 5.6	24:00 -0.7	26:54 4.8	M	17	8:15 -0.3	14:00 5.6	19:52 -0.7	25:12 4.7	
	Th	18	1:15 -0.4	19:50 5.4	26:00 5.0	27:06 4.4	S	18	1:15 -0.3	20:20 5.5	25:00 -0.7	27:06 4.8	Tu	18	8:15 -0.1	14:00 5.5	19:52 -0.6	25:12 4.6	
	F	19	2:00 -0.4	20:40 5.6	27:00 4.9	27:18 4.4	M	19	2:00 -0.1	21:10 5.4	26:00 -0.5	27:18 4.5	W	19	8:15 0.1	14:00 5.2	19:52 -0.5	25:12 4.5	
	S	20	2:48 -0.8	21:30 5.4	28:00 -0.5	27:30 4.8	Tu	20	2:48 0.2	22:00 5.1	27:00 -0.3	27:30 4.3	Th	20	8:15 0.3	14:00 4.9	19:52 -0.3	25:12 4.4	
S	S	21	3:37 -0.1	22:20 5.2	29:00 -0.3	27:42 4.8	W	21	3:37 0.4	22:50 4.8	28:00 -0.1	27:42 4.5	F	21	8:15 0.5	14:00 4.6	19:52 0.0	25:12 4.4	
	M	22	4:30 0.2	23:10 5.0	30:00 -0.1	27:54 4.2	D	Th	22	4:30 4.2	23:20 0.6	29:00 4.5	27:54 0.1	S	22	8:15 0.5	14:00 0.7	19:52 4.3	25:12 0.2
	Tu	23	5:28 0.5	24:00 4.7	31:00 0.1	28:06 4.2	F	23	5:28 4.1	24:10 0.8	30:00 4.3	28:06 0.0	E	S	23	8:15 4.2	14:00 0.8	19:52 4.0	25:12 0.4
	W	24	6:34 4.0	24:50 0.7	32:00 4.4	28:18 0.3	S	24	6:34 4.1	25:00 0.8	31:00 4.2	28:18 0.3	M	24	8:15 4.2	14:00 0.8	19:52 3.8	25:12 0.5	
	Th	25	7:48 3.9	25:40 0.8	33:00 4.3	28:30 0.4	S	25	7:48 4.2	25:50 0.7	32:00 4.1	28:30 0.3	Tu	25	8:15 4.3	14:00 0.8	19:52 3.7	25:12 0.6	
D	F	26	8:54 4.0	26:30 0.8	34:00 4.2	28:42 0.3	E	M	26	8:54 4.4	26:40 0.6	33:00 4.1	28:42 0.3	W	26	8:15 4.3	14:00 0.8	19:52 3.7	25:12 0.6
	S	27	10:00 4.1	27:20 0.6	35:00 4.3	28:54 0.3	Tu	27	10:00 4.5	27:10 0.5	34:00 4.1	28:54 0.3	Th	27	8:15 5.1	14:00 4.4	19:52 3.6	25:12 0.6	
	S	28	11:06 4.3	28:10 0.4	36:00 4.4	29:06 0.1	W	28	11:06 4.6	28:20 0.4	35:00 4.0	29:06 3.8	A	F	28	8:15 4.5	14:00 0.6	19:52 3.6	25:12 3.8
	M	29	12:12 4.5	29:20 0.3	37:00 4.4	29:18 3.5	Th	29	12:12 0.4	29:30 0.7	36:00 0.3	29:18 3.9	S	29	8:15 0.7	14:00 4.6	19:52 0.5	25:12 3.5	
	Tu	30	1:18 0.1	30:30 4.7	38:00 0.1	29:30 4.4	C	F	30	1:18 0.4	30:40 4.7	37:00 0.3	29:30 3.8	N	S	30	8:15 0.7	14:00 4.6	19:52 0.4
C	W	31	2:24 0.1	31:40 4.8	39:00 0.1	29:42 4.3								M	31	8:15 0.7	14:00 4.7	19:52 0.3	25:12 3.7

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUAR												
Moon.	Day of—		Time and H.		Moon.	Day of—		Time and H.				
	W.	Mo.	Lo.	Hi.		W.	Mo.	Lo.	Hi.			
E D	M	1	1:28 0.2	6:14 4.8	13:49 0.4	5:11 5.1	Th	1	2:21 0.3	7:17 5.0	14:49 0.7	17:51 4.7
	Tu	2	2:18 0.1	7:12 4.8	14:38 0.5	19:27 4.9	F	2	3:07 0.4	8:18 5.1	15:42 0.7	20:18 4.6
	W	3	3:06 0.1	8:08 4.9	15:32 0.6	20:25 4.7	S	3	3:57 0.5	9:08 5.2	16:38 0.7	21:30 4.5
A	Th	4	3:54 0.2	9:04 5.0	16:28 0.7	21:22 4.6	S	4	4:48 0.5	10:02 5.3	17:35 0.7	22:28 4.5
	F	5	4:44 0.3	9:57 5.2	17:25 0.7	22:18 4.6	M	5	5:40 0.5	10:50 5.4	18:30 0.5	23:19 4.6
	S	6	5:34 0.3	10:46 5.3	18:20 0.6	23:08 4.6	N Tu	6	6:33 0.4	11:41 5.6	19:25 0.4	24:00 4.6
N	S	7	6:28 0.3	11:32 5.4	19:34 0.5	23:52 4.6	W	7	7:24 4.7	12:37 0.4	20:18 5.8	24:02 0.2
	M	8	7:12 0.4	12:16 5.6	20:05 0.4	24:00 4.6	Th	8	8:08 4.8	13:12 0.3	21:08 5.9	24:01 0.1
	Tu	9	8:04 4.6	12:58 0.3	20:50 5.7	24:02 0.2	○ F	9	1:00 4.9	9:00 0.2	18:58 5.9	24:07 0.1
○	W	10	1:14 4.6	8:40 0.8	13:37 5.8	24:02 0.2	S	10	1:58 5.0	9:47 0.3	14:35 6.0	24:02 0.2
	Th	11	1:58 4.7	9:22 0.4	14:18 5.9	24:02 0.2	S	11	2:58 5.2	10:33 0.3	15:17 6.0	24:09 0.1
	F	12	2:32 4.7	10:06 0.4	14:52 5.9	24:02 0.2	E M	12	3:38 5.3	11:22 0.2	15:58 6.0	24:02 0.2
P	S	13	3:12 4.8	10:51 0.4	15:38 5.9	24:02 0.2	P Tu	13	4:28 5.3	12:13 0.3	16:46 6.1	24:00 0.1
	S	14	3:55 4.9	11:38 0.4	16:15 5.8	24:00 0.1	W	14	5:02 0.3	12:52 0.3	17:06 6.1	24:00 0.1
	M	15	4:42 0.2	12:25 5.0	17:02 5.5	24:00 0.1	○ Th	15	5:58 0.3	13:42 0.5	18:40 6.1	24:00 0.1
C	Tu	16	1:08 0.3	5:30 5.1	13:20 0.6	17:57 6.3	F	16	2:19 0.3	7:38 5.2	15:08 6.6	19:47 4.5
	W	17	1:50 0.4	6:32 5.1	14:16 0.6	18:58 5.0	S	17	3:17 0.4	8:30 5.3	16:09 6.6	21:00 4.4
	Th	18	2:40 0.4	7:38 5.2	15:17 0.7	20:04 4.7	S	18	4:20 0.4	9:40 5.1	17:21 6.6	22:18 4.3
S	F	19	3:37 0.4	8:48 5.2	16:24 0.6	21:17 4.5	■ M	19	5:24 0.4	10:42 5.4	18:28 6.4	23:18 4.4
	S	20	4:37 0.4	9:58 5.3	17:32 0.6	22:28 4.4	Tu	20	6:31 0.4	11:40 5.6	19:36 6.3	24:00 4.4
	S	21	5:39 0.3	10:56 5.5	18:42 0.4	23:28 4.5	W	21	7:07 4.5	12:37 0.4	20:32 6.5	24:00 4.5
S	M	22	6:43 0.2	11:52 5.6	19:49 0.3	24:00 0.0	Th	22	8:06 4.6	13:35 0.3	21:18 6.6	24:00 4.4
	Tu	23	7:46 4.6	12:44 0.2	20:47 5.8	24:00 0.1	● F	23	1:40 4.7	14:08 0.3	21:59 6.8	24:00 4.3
	W	24	1:08 4.6	8:43 -0.1	13:38 5.8	21:37 0.0	S	24	2:22 4.8	10:06 0.2	14:42 6.4	22:35 0.3
E	Th	25	1:55 4.6	9:34 0.0	14:20 5.8	22:20 0.3	E S	25	3:02 4.9	10:46 0.3	15:18 6.3	23:09 0.3
	F	26	2:40 4.7	10:21 0.2	15:02 5.7	23:00 0.3	M	26	3:58 5.0	11:24 0.4	15:55 6.2	23:43 0.4
	S	27	3:24 4.8	11:05 0.3	15:42 5.6	23:38 0.3	Tu	27	4:15 5.0	12:08 0.5	16:28 6.1	24:00 4.9
E	S	28	4:06 4.8	11:46 0.3	16:22 5.4	24:00 4.9	W	28	5:02 0.3	12:43 0.6	17:08 6.1	24:00 4.9
	M	29	5:18 0.3	12:50 4.9	17:32 0.4	24:00 5.2	A Th	29	5:44 5.3	13:10 0.6	17:58 6.1	24:00 4.8
	Tu	30	6:37 0.3	13:52 4.9	18:16 0.6	24:00 5.1	F	30	6:20 0.6	14:52 5.3	18:51 0.7	24:00 4.7
W	W	31	1:37 0.3	6:23 4.9	14:00 0.8	18:37 4.9	■ 31	1:00 0.7	5:36 5.4	13:35 0.8	17:58 4.6	24:00 4.6

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W. 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Moon.	Day of—	Time and Height of High and Low Water.								Moon.	Day of—	Time and Height of High and Low Water.								Moon.	Day of—	Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	W. Mo.										W. Mo.										W. Mo.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☾, new moon; ☽, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
P C S	S 1	4:05 0.7	9:00 4.8	16:26 0.4	21:37 5.4	P	W 1	6:00 0.6	10:55 4.5	18:07 0.8	23:22 5.6	O E C N	S 1	0:05 5.5	8:00 0.5	12:31 4.7	20:05 0.2
	M 2	5:10 0.6	10:08 4.7	17:00 0.3	22:38 5.5	S	Th 2	7:12 0.4	11:50 4.5	19:12 0.3	24:22 5.6		S 2	0:57 5.6	8:52 0.4	13:18 4.8	21:00 0.8
	Tu 3	6:16 0.5	11:10 4.7	18:25 0.2	23:35 5.7	F	3	0:17 5.8	8:15 0.2	12:42 4.7	20:13 0.1		M 3	1:48 5.6	9:37 0.3	14:02 5.0	21:48 0.2
	W 4	7:25 0.3	12:04 4.7	19:26 0.2	24:38 5.8	O	S 4	1:08 5.8	9:10 0.3	13:30 4.9	21:09 0.0		Tu 4	2:24 5.5	10:16 0.2	14:43 5.1	22:29 0.2
	Th 5	8:30 5.9	8:27 0.1	12:54 4.8	20:25 0.0	S	5	1:57 5.8	9:57 0.2	14:17 4.8	22:00 0.0		W 5	3:08 5.4	10:52 0.2	15:22 5.1	23:10 0.3
E C A	F 6	1:20 6.0	9:24 0.2	13:44 4.7	21:20 0.0	M	6	2:43 5.8	10:40 0.2	15:03 4.9	22:46 0.1	A C N	Th 6	3:41 5.2	11:28 0.2	16:01 5.2	23:50 0.4
	S 7	2:10 6.1	10:14 0.2	14:33 4.8	22:11 0.0	Tu	7	3:25 5.7	11:20 0.2	15:48 5.0	23:31 0.3		F 7	4:18 5.1	12:06 0.3	16:38 5.2	24:41 0.5
	S 8	2:58 6.0	11:00 0.1	15:22 4.8	23:02 0.0	E	W 8	4:07 5.5	12:00 0.2	16:32 5.0	24:02 0.1		S 8	0:31 0.6	4:57 4.9	12:44 0.3	17:15 5.2
	M 9	3:45 5.9	11:45 0.0	16:12 4.9	23:54 0.2	Th	9	0:17 0.3	4:48 5.3	12:41 0.2	17:15 5.0		S 9	1:12 0.6	5:38 4.8	13:25 0.4	18:08 5.2
	Tu 10	4:30 5.7	12:30 0.2	17:04 4.9	24:46 0.1	F	10	1:02 0.4	5:33 5.1	13:23 0.2	18:06 5.0		M 10	1:57 0.7	6:27 4.6	14:08 0.5	19:02 5.2
E C A	W 11	0:42 6.4	5:20 5.4	13:14 0.2	17:52 4.9	C	S 11	1:47 0.6	6:23 4.9	14:05 0.2	18:59 5.0	N E P	Tu 11	2:45 0.7	7:22 4.5	14:56 0.6	20:00 5.2
	Th 12	1:31 0.4	6:14 5.2	13:59 0.1	18:50 4.9	S	12	2:35 0.7	7:16 4.7	14:50 0.3	19:57 5.1		W 12	3:38 0.7	8:24 4.4	15:48 0.6	20:59 5.2
	F 13	2:20 0.6	7:10 5.0	14:45 0.2	19:50 4.9	A	M 13	3:26 0.7	8:13 4.5	15:41 0.4	20:53 5.1		Th 13	4:33 0.7	9:27 4.5	16:44 0.7	21:55 5.3
	S 14	3:14 0.6	8:06 4.8	15:35 0.2	20:47 5.0	Tu	14	4:22 0.7	9:19 4.4	16:33 0.5	21:48 5.3		F 14	5:31 0.6	10:27 4.6	17:41 0.5	22:49 5.4
	S 15	4:11 0.7	9:05 4.6	16:26 0.3	21:40 5.1	W	15	5:19 0.7	10:13 4.4	17:28 0.5	22:38 5.3		S 15	6:25 0.4	11:19 4.8	18:35 0.4	23:40 5.6
A N E	M 16	5:10 0.7	10:02 4.5	17:18 0.3	22:30 5.3	N	Th 16	6:15 0.6	11:07 4.5	18:20 0.4	23:28 5.5	E P S	S 16	7:20 0.3	12:04 5.0	19:28 0.3	24:41 5.6
	Tu 17	6:08 0.6	10:55 4.5	18:10 0.2	23:18 5.4	F	17	7:10 0.4	11:52 4.6	19:10 0.3	24:18 5.4		M 17	0:28 5.7	8:10 0.8	12:48 5.2	20:19 0.1
	W 18	7:02 0.5	11:40 4.5	19:00 0.3	24:18 5.5	S	18	0:13 5.6	8:01 0.3	12:34 4.7	19:59 0.3		Tu 18	1:12 5.8	8:55 0.2	13:30 5.4	21:08 0.0
	Th 19	0:04 5.5	7:54 4.5	12:22 4.5	19:45 0.4	S	19	0:57 5.7	8:47 0.2	13:16 4.8	20:43 0.2		W 19	1:58 5.8	9:37 0.1	14:12 5.6	21:56 0.0
	F 20	0:45 5.6	8:40 0.5	13:02 4.5	20:29 0.4	M	20	1:38 5.8	9:28 0.1	13:54 5.0	21:28 0.2		Th 20	2:36 5.7	10:20 0.1	14:54 5.7	22:43 0.0
E D S	S 21	1:23 5.7	9:20 0.3	13:40 4.6	21:09 0.4	Tu	21	2:17 5.9	10:07 0.1	14:33 5.2	22:13 0.2	D S	F 21	3:19 5.5	11:08 0.2	15:38 5.7	23:32 0.1
	S 22	2:00 5.7	9:57 0.3	14:17 4.7	21:50 0.5	W	22	2:57 5.8	10:47 0.1	15:14 5.3	22:58 0.2		S 22	4:04 5.3	11:49 0.2	16:23 5.7	24:41 0.1
	M 23	2:37 5.8	10:34 0.2	14:55 4.8	22:31 0.5	E	Th 23	3:37 5.7	11:28 0.2	15:58 5.4	23:48 0.3		S 23	0:23 0.2	4:53 5.0	12:38 0.3	17:17 5.6
	Tu 24	3:14 5.8	11:10 0.2	15:35 4.9	23:15 0.5	F	24	4:20 5.5	12:13 0.2	16:42 5.4	24:38 0.3		M 24	1:18 0.4	5:48 4.8	13:29 0.3	18:20 5.5
	W 25	3:54 5.7	11:51 0.3	16:18 5.0	24:01 0.5	S	25	0:37 0.4	5:07 5.2	12:59 0.3	17:34 5.4		Tu 25	2:16 0.5	6:52 4.5	14:25 0.5	19:31 5.3
E D S	Th 26	0:04 0.6	4:35 5.6	12:35 0.4	17:02 5.1	D	S 26	1:32 0.5	6:02 4.9	13:47 0.4	18:37 5.3	P S	W 26	3:17 0.5	8:05 4.4	15:27 0.5	20:45 5.3
	F 27	0:54 0.6	5:25 5.4	13:22 0.4	17:55 5.2	P	M 27	2:28 0.6	7:05 4.6	14:42 0.4	19:47 5.3		Th 27	4:24 0.6	9:18 4.4	16:29 0.5	21:53 5.2
	S 28	1:46 0.6	6:24 5.1	14:10 0.4	18:58 5.2	Tu	28	3:32 0.7	8:17 4.4	15:42 0.4	21:01 5.3		F 28	5:33 0.7	10:27 4.5	17:43 0.5	22:53 5.2
	S 29	2:44 0.7	7:25 4.8	15:04 0.5	20:08 5.3	S	W 29	4:40 0.7	9:32 4.3	16:48 0.4	22:18 5.3		S 29	6:38 0.7	11:25 4.7	18:52 0.3	23:51 5.3
	M 30	3:46 0.7	8:35 4.6	16:00 0.5	21:17 5.3	Th	30	5:51 0.6	10:42 4.4	17:54 0.3	23:05 5.4		S 30	7:37 0.5	12:14 4.8	19:54 0.2	24:41 5.4
	Tu 31	4:54 0.7	9:48 4.5	17:02 0.4	22:22 5.4	F	31	6:58 0.6	11:38 4.5	19:02 0.3	24:12 5.4						

The times are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

The time used is Eastern Standard, 75th meridian, W: 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 5:47 is 5:47 p. m.

☉, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
E	M	1	1:28 2.3	7:28 0.3	13:42 2.2	19:50 0.2	D	Th	1	2:28 2.2	8:30 0.6	14:38 1.8	20:40 0.4	A	Th	1	0:48 2.3	6:50 0.4	12:54 1.9	19:00 0.3
	Tu	2	2:25 2.2	8:26 0.5	14:40 2.0	20:40 0.3		F	2	3:19 2.2	9:22 0.6	15:32 1.7	21:29 0.4	F	2	1:32 2.2	7:36 0.5	13:36 1.8	19:46 0.4	
	W	3	3:19 2.2	9:25 0.5	15:38 1.9	21:29 0.3		S	3	4:06 2.2	10:18 0.6	16:28 1.7	22:18 0.4	D	S	3	2:20 2.2	8:30 0.5	14:30 1.7	20:36 0.5
A	Th	4	4:10 2.3	10:20 0.6	16:35 1.9	22:23 0.3	N	S	4	4:56 2.3	11:10 0.5	17:24 1.8	23:10 0.3	S	4	3:15 2.1	9:27 0.5	15:30 1.7	21:35 0.5	
	F	5	4:56 2.3	11:10 0.5	17:27 1.9	23:05 0.3		M	5	5:42 2.4	12:00 0.4	18:11 1.8	23:58 0.2	N	M	5	4:10 2.2	10:25 0.5	16:30 1.8	22:30 0.4
	S	6	5:41 2.4	11:56 0.5	18:12 1.9	23:50 0.3		Tu	6	6:30 2.5	12:46 0.2	18:58 2.0		Tu	6	5:05 2.3	11:20 0.3	17:30 1.9	23:28 0.2	
N	S	7	6:22 2.5	12:38 0.3	18:54 1.9		O	W	7	0:45 0.1	7:16 2.7	13:32 0.0	19:44 2.2	W	7	5:56 2.5	12:10 0.2	18:20 2.1		
	M	8	0:30 0.2	7:08 2.6	13:19 0.2	19:32 2.0		Th	8	1:32 0.0	8:00 2.8	14:15 -0.1	20:23 2.3	Th	8	0:20 0.1	6:47 2.6	13:00 0.0	19:10 2.3	
	Tu	9	1:11 0.2	7:42 2.7	14:00 0.1	20:10 2.1		F	9	2:18 -0.1	8:44 2.8	14:58 -0.2	21:05 2.5	F	9	1:10 -0.1	7:35 2.7	13:45 -0.2	19:55 2.6	
O	W	10	1:53 0.1	8:24 2.8	14:40 -0.1	20:45 2.2	E	S	10	3:04 -0.2	9:28 2.8	15:41 -0.3	21:50 2.6	O	S	10	2:00 -0.3	8:20 2.8	14:30 -0.3	20:41 2.7
	Th	11	2:34 0.0	9:05 2.8	15:23 -0.1	21:25 2.3		S	11	3:52 -0.2	10:12 2.8	16:25 -0.3	22:38 2.7	E	S	11	2:47 -0.3	9:08 2.6	15:12 -0.4	21:20 2.8
	F	12	3:20 0.0	9:48 2.8	16:04 -0.2	22:08 2.8		M	12	4:40 -0.2	10:58 2.7	17:08 -0.2	23:25 2.7	P	M	12	3:37 -0.4	9:54 2.8	15:56 -0.4	22:14 2.9
P	S	13	4:05 0.0	10:32 2.7	16:43 -0.2	22:54 2.4	P	Tu	13	5:34 -0.2	11:46 2.5	17:58 -0.2		Tu	13	4:30 -0.4	10:40 2.7	16:42 -0.3	23:04 2.9	
	S	14	4:54 0.0	11:16 2.6	17:34 -0.2	23:45 2.4		W	14	0:18 2.6	6:28 0.0	12:36 2.4	18:45 0.0	W	14	5:16 -0.3	11:28 2.5	17:30 -0.2	23:50 2.8	
	M	15	5:48 0.0	12:05 2.5	18:20 -0.1		C	Th	15	1:12 2.6	7:26 0.1	13:32 2.2	19:42 0.0	Th	15	6:10 -0.1	12:20 2.3	18:24 -0.1		
C	Tu	16	0:38 2.5	6:45 0.1	12:56 2.3	19:10 0.0		F	16	2:15 2.5	8:30 0.2	14:40 2.0	20:42 0.1	F	16	0:55 2.7	7:10 0.1	13:18 2.2	19:20 0.1	
	W	17	1:35 2.5	7:44 0.2	13:52 2.2	20:05 0.1		S	17	3:21 2.5	9:42 0.3	15:55 1.9	21:47 0.2	C	S	17	1:57 2.6	8:15 0.2	14:29 2.0	20:26 0.2
S	Th	18	2:36 2.5	8:50 0.2	14:56 2.1	21:04 0.1	S	S	18	4:28 2.5	10:53 0.3	17:10 2.0	22:54 0.1	S	S	18	3:07 2.5	9:25 0.3	15:45 2.0	21:35 0.2
	F	19	3:40 2.5	9:57 0.3	16:08 2.0	22:02 0.1		M	19	5:34 2.6	11:58 0.3	18:15 2.1	23:55 0.0	M	19	4:15 2.4	10:36 0.4	16:56 2.0	22:45 0.2	
	S	20	4:43 2.6	11:04 0.2	17:20 2.0	23:05 0.0	E	Tu	20	6:30 2.7	12:51 0.2	19:10 2.2		Tu	20	5:20 2.5	11:45 0.3	17:56 2.2	23:50 0.1	
E	S	21	5:45 2.7	12:06 0.2	18:21 2.1			W	21	0:54 0.0	7:25 2.7	13:40 0.0	19:58 2.4	W	21	6:22 2.5	12:35 0.2	18:50 2.3		
	M	22	0:05 -0.1	6:40 2.8	13:04 0.1	19:18 2.2		Th	22	1:48 -0.1	8:12 2.7	14:25 0.0	20:40 2.5	Th	22	0:50 0.0	7:12 2.5	13:21 0.1	19:37 2.4	
	Tu	23	1:00 -0.1	7:35 2.9	13:55 0.0	20:10 2.3	E	F	23	2:36 -0.1	8:57 2.7	15:06 -0.1	21:22 2.5	F	23	1:40 0.0	7:58 2.6	14:00 0.0	20:19 2.5	
E	W	24	1:56 -0.2	8:34 2.9	14:42 -0.1	21:00 2.4		S	24	3:20 -0.1	9:40 2.6	15:45 -0.1	22:02 2.5	S	24	2:25 -0.1	8:40 2.6	14:40 0.0	20:58 2.6	
	Th	25	2:46 -0.2	9:14 2.9	15:28 -0.2	21:45 2.4		S	25	4:05 0.0	10:20 2.5	16:22 -0.1	22:44 2.5	E	S	25	3:02 -0.1	9:18 2.5	15:15 0.0	21:35 2.6
	F	26	3:36 -0.1	10:00 2.8	16:12 -0.2	22:28 2.5	E	M	26	4:45 0.0	11:00 2.4	17:00 0.0	23:25 2.5	M	26	3:40 0.0	9:56 2.4	15:50 0.0	22:10 2.5	
E	S	27	4:25 0.0	10:45 2.7	16:54 -0.1	23:15 2.4		Tu	27	5:27 0.2	11:37 2.2	17:40 0.1		Tu	27	4:18 0.1	10:28 2.3	16:24 0.1	22:48 2.4	
	S	28	5:12 0.1	11:30 2.5	17:38 -0.1			W	28	0:06 2.4	6:06 0.3	12:15 2.1	18:20 0.2	A	W	28	4:52 0.2	11:00 2.2	17:00 0.2	23:24 2.4
	M	29	0:02 2.4	6:00 0.2	12:14 2.3	18:21 0.1	E	Th	29	0:51 0.2	6:51 2.0	13:12 0.3		Th	29	5:31 0.2	11:32 2.0	17:34 0.3		
	Tu	30	0:49 2.3	6:49 0.4	13:00 2.1	19:05 0.2		F	30	0:02 2.3	6:10 0.3	12:08 1.9		F	30	0:02 2.3	6:10 0.3	12:08 1.9	18:12 0.4	
	W	31	1:38 2.3	7:38 0.5	13:48 1.9	19:50 0.3		S	31	0:48 2.2	6:55 0.4	12:50 1.9		S	31	0:48 2.2	6:55 0.4	12:50 1.9	18:58 0.4	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

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APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	1:32 2.2	7:46 0.4	18:44 1.8	19:50 0.5	D	Tu	1	1:45 2.2	8:08 0.3	14:16 2.0	20:18 0.4	E	F	1	3:15 2.2	9:25 0.1	15:52 2.4	22:05 0.1
	M	2	2:25 2.2	8:42 0.4	14:45 1.8	20:50 0.5		W	2	2:46 2.2	9:05 0.3	15:22 2.1	21:24 0.3	E	S	2	4:15 2.2	10:22 0.1	16:51 2.6	23:06 0.0
	Tu	3	3:26 2.2	9:40 0.4	15:50 1.9	21:55 0.4		Th	3	3:47 2.2	10:02 0.2	16:22 2.3	22:28 0.2		S	3	5:15 2.3	11:17 -0.1	17:48 2.8	...
	W	4	4:25 2.3	10:45 0.3	16:54 2.1	22:55 0.2		F	4	4:48 2.3	10:58 0.1	17:19 2.4	23:30 0.0		M	4	6:04 -0.1	6:15 2.3	12:10 -0.2	18:42 3.0
	Th	5	5:22 2.4	11:35 0.1	17:50 2.3	23:54 0.0	E	S	5	5:47 2.4	11:50 -0.1	18:11 2.7	...		Tu	5	1:00 -0.2	7:08 2.4	13:06 -0.3	19:40 3.1
	F	6	6:15 2.5	12:25 -0.1	18:40 2.5	...		S	6	6:26 -0.2	6:40 2.5	12:45 -0.2	19:05 2.9	P	W	6	1:50 -0.4	8:05 2.5	13:56 -0.4	20:26 3.2
	S	7	7:05 -0.2	7:10 2.7	13:12 -0.2	19:26 2.7		M	7	1:20 -0.4	7:30 2.6	13:30 -0.3	19:55 3.1		Th	7	2:42 -0.4	8:55 2.5	14:50 -0.3	21:18 3.2
E	S	8	1:40 -0.4	7:56 2.8	14:00 -0.4	20:17 2.9		Tu	8	2:10 -0.5	8:20 2.6	14:20 -0.4	20:42 3.2	S	F	8	3:25 -0.4	9:47 2.5	15:45 -0.3	22:12 3.1
	M	9	2:30 -0.5	8:45 2.8	14:45 -0.4	21:05 3.1		W	9	3:00 -0.5	9:10 2.6	15:08 -0.4	21:35 3.2		S	9	4:27 -0.3	10:40 2.5	16:40 -0.2	23:05 2.9
P	Tu	10	3:18 -0.5	9:30 2.7	15:30 -0.4	21:55 3.1		Th	10	3:50 -0.5	10:00 2.6	16:00 -0.3	22:27 3.1		S	10	5:20 -0.2	11:35 2.4	17:30 0.0	...
	W	11	4:09 -0.5	10:19 2.6	16:17 -0.3	22:44 3.0		F	11	4:42 -0.4	10:50 2.5	16:50 -0.2	23:20 2.9		M	11	6:00 2.7	6:12 -0.1	12:34 2.4	18:32 0.1
	Th	12	4:59 -0.3	11:09 2.5	17:09 -0.2	23:40 2.9		S	12	5:38 -0.2	11:50 2.4	17:49 0.0	...		Tu	12	6:58 2.5	7:10 0.0	13:35 2.3	19:38 0.2
	F	13	5:55 -0.2	12:04 2.3	18:05 -0.1	...		S	13	6:20 2.8	6:32 0.0	12:50 2.3	18:50 0.1	C	W	13	1:57 2.3	8:06 0.1	14:38 2.3	20:42 0.3
S	S	14	6:36 2.7	6:52 0.0	13:05 2.2	19:05 0.1		M	14	1:20 2.5	7:36 0.1	13:59 2.2	19:57 0.2		Th	14	3:00 2.2	9:02 0.2	15:38 2.3	21:49 0.4
C	S	15	1:42 2.6	7:57 0.2	14:15 2.1	20:12 0.2		Tu	15	2:25 2.4	8:40 0.2	15:05 2.2	21:10 0.3	E	F	15	4:03 2.1	9:56 0.2	16:32 2.4	22:51 0.4
	M	16	2:48 2.4	9:06 0.3	15:30 2.1	21:27 0.3		W	16	3:34 2.3	9:40 0.2	16:10 2.3	22:25 0.3		S	16	5:04 2.1	10:55 0.2	17:25 2.4	23:42 0.4
	Tu	17	4:00 2.4	10:14 0.3	16:38 2.1	22:38 0.3		Th	17	4:37 2.2	10:40 0.2	17:08 2.4	23:25 0.3		S	17	5:58 2.1	11:36 0.2	18:10 2.5	...
	W	18	5:05 2.3	11:14 0.2	17:40 2.3	23:40 0.2	E	F	18	5:38 2.2	11:30 0.2	18:00 2.4	...	A	M	18	6:30 0.4	6:45 2.0	12:18 0.2	18:50 2.5
	Th	19	6:02 2.4	12:05 0.1	18:27 ...	...		S	19	6:15 0.2	6:30 2.2	12:20 0.1	18:45 2.5		Tu	19	1:10 0.3	7:56 2.0	13:00 0.2	19:28 2.6
	F	20	6:35 0.1	6:52 2.4	12:50 0.1	19:14 2.5		S	20	1:00 0.2	7:16 2.2	12:55 0.1	19:25 2.6		W	20	1:45 0.2	8:02 2.0	13:38 0.2	20:02 2.6
E	S	21	1:20 0.0	7:38 2.4	13:32 0.1	19:54 2.6		M	21	1:40 0.2	7:55 2.2	13:34 0.1	20:00 2.6	●	Th	21	2:20 0.2	8:35 2.0	14:12 0.2	20:40 2.6
	S	22	2:04 0.0	8:20 2.4	14:08 0.1	20:32 2.6	A	Tu	22	2:15 0.1	8:30 2.1	14:10 0.1	20:36 2.6	N	F	22	2:55 0.1	9:05 2.1	14:50 0.2	21:18 2.7
●	M	23	2:40 0.0	8:56 2.3	14:42 0.0	21:08 2.6		W	23	2:50 0.1	9:03 2.1	14:45 0.1	21:10 2.6		S	23	3:30 0.0	9:35 2.1	15:24 0.2	21:52 2.6
	Tu	24	3:14 0.1	9:30 2.2	15:17 0.1	21:40 2.6		Th	24	3:21 0.1	9:32 2.1	15:16 0.2	21:42 2.6		S	24	4:08 0.0	10:10 2.1	16:00 0.2	22:32 2.6
A	W	25	3:50 0.1	10:00 2.2	15:48 0.2	22:12 2.5		F	25	3:58 0.1	10:00 2.0	15:48 0.2	22:16 2.5		M	25	4:50 -0.1	10:55 2.2	16:50 0.2	23:14 2.5
	Th	26	4:24 0.1	10:28 2.1	16:20 0.2	22:48 2.5	N	S	26	4:30 0.1	10:30 2.0	16:25 0.3	22:55 2.6		Tu	26	5:40 0.0	11:40 2.2	17:35 0.2	23:58 2.4
	F	27	5:00 0.2	11:00 2.0	16:55 0.3	23:24 2.4		S	27	5:12 0.1	11:10 2.0	17:04 0.3	23:35 2.4		W	27	6:20 0.0	12:32 2.3	18:32 0.2	...
	S	28	5:39 0.2	11:36 2.0	17:35 0.4	...		M	28	5:55 0.1	12:10 2.0	17:55 0.4	...		Th	28	6:46 2.3	7:08 0.1	13:27 2.3	19:32 0.2
N	S	29	6:05 2.3	6:21 0.2	12:20 1.9	18:20 0.4		Tu	29	6:22 2.3	6:45 0.1	12:54 2.1	18:50 0.4	D	F	29	1:42 2.2	8:00 0.1	14:26 2.4	20:35 0.2
	M	30	6:50 2.2	7:11 0.3	13:14 1.9	19:15 0.5		W	30	1:14 2.2	7:36 0.2	13:52 2.1	19:54 0.4	E	S	30	2:40 2.1	9:05 0.1	15:28 2.5	21:40 0.2
							D	Th	31	2:10 2.2	8:32 0.2	14:52 2.3	21:00 0.3							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; Q, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.				W.	Mo.				W.	Mo.							
P	S	1	3:45 2.1	9:50 0.1	16:26 2.6	22:44 0.1	P	W	1	5:45 2.1	11:32 0.0	18:10 2.8	O	S	1	1:12 0.0	7:28 2.4	13:21 -0.1	19:50 2.8
	M	2	4:51 2.1	10:50 0.0	17:28 2.8	23:45 0.0		Th	2	0:30 0.1	6:46 2.2	12:32 -0.1		S	2	2:00 -0.1	8:14 2.5	14:12 -0.2	20:35 2.8
	Tu	3	5:58 2.2	11:47 -0.1	18:24 2.9			F	3	1:25 0.0	7:40 2.3	13:30 -0.2		M	3	2:40 -0.2	8:57 2.6	15:00 -0.2	21:20 2.7
S	W	4	0:43 -0.1	6:55 2.3	12:44 -0.2	19:20 3.1	O	S	4	2:16 -0.1	8:32 2.4	14:22 -0.2	E	Tu	4	3:25 -0.2	9:41 2.6	15:45 -0.1	22:02 2.6
	Th	5	1:38 -0.2	7:50 2.3	13:40 -0.3	20:12 3.1		S	5	3:02 -0.2	9:18 2.5	15:14 -0.2		W	5	4:04 -0.2	10:25 2.7	16:28 -0.1	22:42 2.5
	F	6	2:30 -0.2	8:43 2.4	14:34 -0.4	21:03 3.1		M	6	3:48 -0.2	10:04 2.6	16:05 -0.2		Th	6	4:42 -0.1	11:10 2.6	17:12 0.1	23:24 2.3
C	S	7	3:20 -0.3	9:35 2.5	15:26 -0.3	21:55 3.0	E	Tu	7	4:31 -0.2	10:52 2.6	16:53 -0.1	A	F	7	5:25 0.0	11:52 2.5	17:55 0.2	
	S	8	4:10 -0.3	10:25 2.5	16:20 -0.2	22:45 2.9		W	8	5:15 -0.2	11:40 2.5	17:42 0.0		S	8	6:06 2.1	12:36 0.2	18:40 2.4	0.4
	M	9	5:00 -0.2	11:15 2.5	17:13 0.0	23:36 2.7		Th	9	6:02 0.0	12:29 2.5	18:30 0.2		S	9	6:48 2.0	13:20 0.3	19:26 2.2	0.5
E	Tu	10	5:48 -0.2	12:10 2.4	18:10 0.1		C	F	10	6:45 2.2	13:20 0.1	19:22 0.4	N	M	10	7:35 1.8	14:10 0.4	20:17 2.2	0.5
	W	11	6:37 2.5	13:05 -0.1	19:05 2.4	0.2		S	11	7:35 2.0	14:10 0.2	20:15 2.3		Tu	11	8:24 1.8	15:04 0.5	21:18 2.1	0.6
	Th	12	7:30 2.8	14:01 0.1	20:06 2.4	0.4		S	12	8:23 1.9	15:04 0.3	21:10 2.2		W	12	9:20 1.7	15:55 0.5	22:10 2.1	0.6
C	F	13	8:20 2.1	14:56 0.2	21:03 2.8	0.5	A	M	13	9:15 1.8	15:55 0.4	22:08 2.2	Th	Th	13	10:16 1.8	16:50 0.5	23:05 2.2	0.4
	S	14	9:10 2.0	15:51 0.2	22:05 2.3	0.5		Tu	14	10:08 1.7	16:47 0.4	23:00 2.2		F	14	11:11 1.9	17:41 0.3	23:55 2.3	0.3
	S	15	10:04 1.9	16:43 0.3	23:00 2.3	0.6		W	15	10:57 1.8	17:32 0.4	23:50 2.3		S	15	12:02 2.1	18:28 0.2		
A	M	16	10:54 1.9	17:21 0.3	23:50 2.4	0.5	N	Th	16	11:48 1.8	18:18 0.3		S	S	16	6:52 0.1	12:54 2.3	19:15 0.0	2.6
	Tu	17	11:45 1.9	18:13 0.3				F	17	6:50 0.3	12:34 2.0	19:02 0.2		M	17	7:38 -0.2	13:40 2.7	19:58 -0.1	2.7
	W	18	6:50 0.4	12:22 1.9	18:55 0.3	2.5		S	18	7:30 0.1	13:30 2.1	19:46 0.1	E	Tu	18	8:20 -0.2	14:25 2.7	20:45 -0.3	2.8
N	Th	19	7:30 0.3	13:05 2.0	19:34 0.2	2.6	S	S	19	8:08 1.57	14:00 2.3	20:26 0.0		W	19	9:03 -0.8	15:14 2.8	21:29 -0.4	2.8
	F	20	8:03 0.2	13:48 2.0	20:12 0.2	2.7		M	20	8:48 -0.2	14:45 2.4	21:08 -0.1		Th	20	9:48 -0.3	16:00 2.9	22:12 -0.4	2.7
	S	21	8:40 0.1	14:24 2.1	20:52 0.1	2.7	P	Tu	21	9:28 -0.2	15:30 2.6	21:52 -0.2	P	F	21	10:37 -0.3	16:50 2.9	22:48 -0.3	2.6
S	S	22	9:12 -0.1	15:05 2.2	21:34 0.0	2.7		W	22	10:10 -0.3	16:16 2.7	22:34 -0.2		S	22	11:28 -0.2	17:40 2.8	23:48 -0.2	2.4
	M	23	9:54 -0.1	15:46 2.3	22:10 0.0	2.7		Th	23	11:00 -0.2	17:06 2.7	23:20 -0.2		S	23	12:20 -0.1	18:38 2.7		
E	Tu	24	10:34 -0.2	16:32 2.4	22:55 0.0	2.6	D	F	24	11:46 -0.2	18:00 2.7		S	M	24	6:46 2.2	13:22 0.0	19:36 2.6	0.2
	W	25	11:20 -0.2	17:20 2.4	23:38 0.0	2.5		S	25	6:15 2.4	12:40 -0.1	18:54 2.6		Tu	25	7:48 2.1	14:27 0.2	20:45 2.5	0.3
	Th	26	12:10 -0.1	18:15 2.5				S	26	7:06 2.2	13:40 0.0	19:54 2.6		W	26	9:00 2.0	15:38 0.2	21:58 2.5	0.3
D	F	27	6:40 2.4	13:02 0.0	19:10 2.5	0.1	P	M	27	8:08 2.1	14:43 0.1	21:00 2.5	Th	Th	27	10:10 2.0	16:46 0.2	23:03 2.4	0.3
	S	28	7:35 2.2	14:00 0.0	20:12 2.5	0.2		Tu	28	9:08 2.0	15:50 0.2	22:10 2.5		F	28	11:17 2.1	17:48 0.1		
	S	29	8:30 2.1	15:04 0.1	21:18 2.5	0.2		W	29	10:18 2.0	16:58 0.1	23:19 2.6		S	29	6:18 0.2	12:20 2.3	18:45 0.1	2.5
M	M	30	9:27 2.0	16:08 0.1	22:26 2.6	0.3	F	Th	30	11:25 2.1	18:00 0.1		S	S	30	7:08 0.1	13:12 2.5	19:33 0.0	2.6
	Tu	31	10:28 2.0	17:10 0.1	23:30 2.7	0.2		F	31	6:35 0.2	12:25 2.2	18:55 0.0							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of sounding on the Coast and Geodetic Survey Charts for this region, which is 1.3 feet below mean sea level. To find the depth of sounding, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th Meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
E	M	1	1:36 0.0	7:52 2.6	14:00 -0.1	20:18 2.6	Th	1	2:25 0.0	8:50 2.7	15:00 0.0	21:30 2.3	A	S	1	2:30 0.1	8:58 2.6	15:10 0.1	21:28 2.1	
	Tu	2	2:18 -0.1	8:36 2.7	14:44 -0.1	21:00 2.5	F	2	3:00 0.1	9:25 2.6	15:38 0.1	21:50 2.2	S	2	3:03 0.2	9:32 2.6	15:48 0.1	21:56 2.0		
	W	3	2:54 -0.1	9:16 2.7	15:25 -0.1	21:38 2.5	S	3	3:35 0.1	10:02 2.6	16:12 0.1	22:22 2.1	N	M	3	3:38 0.3	10:10 2.5	16:22 0.1	22:26 2.0	
	Th	4	3:35 0.0	9:55 2.6	16:04 0.0	22:16 2.3	A	S	4	4:10 0.2	10:38 2.5	16:50 0.2	22:52 2.0	Tu	4	4:14 0.3	10:42 2.5	16:48 0.1	23:00 2.0	
	F	5	4:10 0.0	10:33 2.6	16:40 0.1	22:52 2.2	M	5	4:45 0.3	11:12 2.4	17:28 0.2	23:28 2.0	W	5	4:50 0.3	11:20 2.4	17:40 0.1	23:42 2.0		
A	S	6	4:45 0.1	11:11 2.5	17:18 0.2	23:25 2.1	N	Tu	6	5:20 0.4	11:52 2.3	18:10 0.3		Th	6	5:36 0.4	12:00 2.3	18:25 0.1		
	S	7	5:26 0.2	11:50 2.3	18:00 0.3		W	7	6:10 1.9	6:05 0.5	12:35 2.2	18:55 0.3	C	S	7	6:25 2.1	6:25 0.4	12:50 2.2	19:12 0.2	
	M	8	6:04 2.0	6:00 0.4	12:34 2.2	18:40 0.4	Th	8	1:00 1.9	6:56 0.5	13:22 2.1	19:47 0.3	S	8	1:27 2.1	7:25 0.4	13:40 2.2	20:02 0.2		
	Tu	9	6:45 1.9	6:45 0.5	13:16 2.1	19:30 0.4	C	F	9	2:00 1.9	7:52 0.5	14:18 2.1	20:40 0.3	S	9	2:24 2.2	8:30 0.3	14:38 2.2	20:56 0.2	
	W	10	1:35 1.8	7:35 0.5	14:06 2.1	20:22 0.5	S	10	2:58 2.0	8:50 0.4	15:18 2.1	21:36 0.3	E	M	10	3:20 2.3	9:32 0.2	15:40 2.2	21:50 0.1	
N	Th	11	2:35 1.8	8:32 0.5	15:04 2.1	21:22 0.4	S	11	4:00 2.2	10:00 0.3	16:20 2.2	22:30 0.2	Tu	11	4:20 2.5	10:32 0.1	16:40 2.2	22:46 0.0		
	F	12	3:35 1.9	9:36 0.5	16:02 2.1	22:20 0.3	M	12	4:54 2.4	11:05 0.1	17:16 2.3	23:25 0.0	W	12	5:20 2.7	11:35 0.0	17:42 2.3	23:40 -0.1		
	S	13	4:35 2.0	10:36 0.3	17:00 2.3	23:10 0.2	E	Tu	13	5:46 2.6	12:00 -0.1	18:10 2.4		Th	13	6:14 2.9	12:30 -0.2	18:39 2.3		
	S	14	5:30 2.2	11:33 0.2	17:54 2.4		W	14	6:15 -0.1	6:37 2.8	12:54 -0.3	19:05 2.5	F	14	6:35 0.2	7:06 3.1	13:22 -0.3	19:33 2.4		
	M	15	6:02 0.1	6:16 2.5	12:27 -0.1	18:45 2.6	Th	15	1:02 -0.2	7:27 3.0	13:43 -0.4	19:51 2.6	P	S	15	1:30 -0.3	8:00 3.2	14:16 -0.4	20:26 2.5	
E	Tu	16	6:50 -0.1	7:05 2.7	13:15 -0.3	19:30 2.7	P	F	16	1:50 -0.3	8:17 3.1	14:34 -0.5	20:40 2.6	S	S	16	2:20 -0.3	8:50 3.2	15:05 -0.4	21:20 2.5
	W	17	1:34 -0.2	7:52 2.9	14:06 -0.4	20:20 2.7	S	17	2:40 -0.4	9:08 3.2	15:25 -0.5	21:32 2.5	M	17	3:13 -0.3	9:45 3.1	16:00 -0.4	22:10 2.5		
	Th	18	2:20 -0.3	8:38 3.0	14:52 -0.5	21:04 2.7	S	18	3:29 -0.3	10:00 3.1	16:15 -0.4	22:24 2.5	Tu	18	4:05 -0.2	10:36 3.0	16:50 -0.3	23:05 2.5		
	F	19	3:05 -0.3	9:30 3.1	15:42 -0.4	21:50 2.5	S	M	19	4:22 -0.3	10:52 3.0	17:08 -0.3	23:19 2.4	W	19	5:02 -0.1	11:30 2.8	17:45 -0.2		
	S	20	3:50 -0.3	10:18 3.1	16:32 -0.4	22:40 2.5	Tu	20	5:16 -0.1	11:48 2.8	18:04 -0.2		Th	20	6:00 2.4	6:00 0.0	12:28 2.6	18:40 -0.1		
S	S	21	4:40 -0.2	11:10 2.9	17:24 -0.3	23:34 2.4	W	21	6:18 2.3	6:18 0.0	12:47 2.6	19:02 0.0	F	21	1:00 2.4	7:05 0.1	13:28 2.4	19:38 0.0		
	M	22	5:33 -0.1	12:05 2.8	18:20 -0.1		Th	22	1:22 2.3	7:22 0.2	13:51 2.5	20:03 0.1	D	S	22	2:04 2.4	8:10 0.2	14:26 2.3	20:31 0.1	
	Tu	23	6:30 2.2	6:30 0.0	13:05 2.6	19:20 0.1	D	F	23	2:30 2.3	8:34 0.3	15:00 2.3	21:05 0.2	E	S	23	3:06 2.4	9:17 0.3	15:52 2.1	21:30 0.2
	W	24	1:35 2.1	7:36 0.2	14:10 2.5	20:28 0.2	S	24	3:36 2.3	9:44 0.3	16:05 2.2	22:06 0.2	M	24	4:05 2.4	10:22 0.4	16:40 2.1	22:23 0.2		
	Th	25	2:48 2.1	8:46 0.3	15:21 2.4	21:36 0.2	S	25	4:35 2.4	10:51 0.3	17:06 2.2	23:00 0.2	Tu	25	5:02 2.5	11:20 0.4	17:35 2.0	23:12 0.2		
E	F	26	3:58 2.1	10:00 0.3	16:29 2.3	22:40 0.2	E	M	26	5:52 2.5	11:50 0.2	18:08 2.2	23:50 0.1	W	26	6:50 2.5	12:15 0.4	18:27 2.0		
	S	27	5:00 2.3	11:10 0.2	17:33 2.3	23:35 0.2	Tu	27	6:20 2.5	12:44 0.2	18:55 2.2		Th	27	8:02 0.2	6:35 2.5	18:00 0.4	19:12 2.0		
	S	28	6:00 2.4	12:08 0.1	18:28 2.4		W	28	9:35 0.1	7:05 2.6	13:25 0.2	19:40 2.2	A	F	28	9:45 0.2	7:16 2.6	13:36 0.3	19:52 2.0	
	M	29	6:24 0.1	6:46 2.5	13:00 0.0	19:16 2.4	Th	29	1:15 0.1	7:44 2.7	14:05 0.2	20:18 2.1	S	29	1:25 0.2	7:52 2.6	14:12 0.2	20:25 2.0		
	Tu	30	1:08 0.0	7:30 2.6	13:45 0.0	20:02 2.4	O	F	30	1:55 0.1	8:22 2.7	14:35 0.1	20:55 2.1	C	S	30	2:08 0.2	8:28 2.6	14:45 0.1	21:00 2.0
C	W	31	1:48 0.0	8:14 2.7	14:25 0.0	20:40 2.3							N	M	31	2:40 0.2	9:04 2.6	15:20 0.1	21:30 2.0	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of sounding on the Coast and Geodetic Survey Charts for this region, which is 1.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th Meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.  
 ●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

E	D	M	1	0:39	7:11	13:00	19:42	D	Th	1	1:24	8:08	13:50	20:32	A	Th	1	0:39	7:11	13:00	19:42
		Tu	2	2:8	0.0	2.7	0.2		F	2	2:5	0.8	2.7	0.4		F	2	0:39	7:11	13:00	19:42
A	W	3	1:20	8:00	13:51	20:37		N	S	3	2:10	8:47	14:35	21:15	W	S	3	1:24	8:08	13:50	20:32
		4	2:6	0.1	2.7	0.3			S	4	2:4	0.4	2.7	0.4		S	4	2:6	0.1	2.7	0.3
C	F	5	2:10	8:49	14:38	21:29		C	M	5	9:00	9:35	15:24	22:24	C	M	5	2:10	8:49	14:38	21:29
		6	2:5	0.2	2.7	0.4			Tu	6	2:8	0.5	2.7	0.4		Tu	6	2:5	0.2	2.7	0.4
E	S	7	8:00	9:37	15:25	22:20		E	W	7	8:50	10:26	16:15	23:15	E	W	7	8:00	9:37	15:25	22:20
		8	2:3	0.3	2.7	0.4			Th	8	2:2	0.5	2.7	0.4		Th	8	2:3	0.3	2.7	0.4
N	Tu	9	8:50	10:28	16:11	23:10		N	S	9	4:48	11:15	17:06	23:56	N	S	9	8:50	10:28	16:11	23:10
		10	2:8	0.4	2.7	0.3			W	10	2:8	0.5	2.8	0.4		W	10	2:8	0.4	2.7	0.3
C	F	11	4:40	11:10	16:56	23:54		C	Th	11	0:04	5:38	12:05	17:57	C	Th	11	4:40	11:10	16:56	23:54
		12	2:2	0.4	2.7	0.3			S	12	0:3	2.3	0.4	2.9		S	12	2:2	0.4	2.7	0.3
E	S	13	5:29	11:55	17:41	24:11		E	W	13	0:05	6:30	12:56	18:45	E	W	13	5:29	11:55	17:41	24:11
		14	2:8	0.4	2.7	0.3			Th	14	0:1	2.5	0.3	3.0		Th	14	2:8	0.4	2.7	0.3
N	Tu	15	0:38	6:15	12:38	18:25		N	S	15	1:36	7:17	13:40	19:34	N	S	15	0:38	6:15	12:38	18:25
		16	0:2	2.3	0.4	2.9			W	16	0:0	2.6	0.2	3.1		W	16	0:2	2.3	0.4	2.9
C	F	17	1:20	7:00	13:20	19:10		C	Th	17	2:25	8:06	14:28	20:20	C	Th	17	1:20	7:00	13:20	19:10
		18	0:1	2.4	0.4	3.0			S	18	-0:1	2.8	0.1	3.2		S	18	0:1	2.4	0.4	3.0
E	S	19	2:05	7:45	14:01	19:55		E	W	19	3:04	8:50	15:14	21:09	E	W	19	2:05	7:45	14:01	19:55
		20	0:0	2.5	0.3	3.1			Th	20	-0:1	2.9	0.0	3.2		Th	20	0:0	2.5	0.3	3.1
N	Tu	21	2:47	8:27	14:43	20:40		N	S	21	3:47	9:35	15:50	21:55	N	S	21	2:47	8:27	14:43	20:40
		22	-0:1	2.6	0.3	3.1			W	22	-0:2	3.0	0.0	3.3		W	22	-0:1	2.6	0.3	3.1
C	F	23	3:30	9:10	15:29	21:25		C	Th	23	4:29	10:20	16:50	22:40	C	Th	23	3:30	9:10	15:29	21:25
		24	-0:1	2.7	0.2	3.1			S	24	-0:1	3.1	0.0	3.4		S	24	-0:1	2.7	0.2	3.1
E	S	25	4:11	9:56	16:15	22:11		E	W	25	5:12	11:08	17:40	23:28	E	W	25	4:11	9:56	16:15	22:11
		26	-0:1	2.9	0.2	3.1			Th	26	-0:1	3.1	0.1	3.0		Th	26	-0:1	2.9	0.2	3.1
N	Tu	27	4:56	10:41	17:03	22:58		N	S	27	5:00	11:58	18:37	24:11	N	S	27	4:56	10:41	17:03	22:58
		28	-0:1	2.9	0.2	3.0			W	28	6:00	12:58	19:37	24:44		W	28	-0:1	2.9	0.2	3.0
C	F	29	5:38	11:30	17:56	23:48		C	Th	29	0:17	6:50	13:50	19:36	C	Th	29	5:38	11:30	17:56	23:48
		30	0:0	2.9	0.2	2.9			S	30	2:8	0.2	3.0	0.2		S	30	0:0	2.9	0.2	2.9
E	S	31	6:25	12:20	18:52	24:11		E	W	31	1:10	7:46	14:48	20:40	E	W	31	6:25	12:20	18:52	24:11
			0:1	2.9	0.3	3.1			Th		2:6	0.3	2.9	0.3		Th		0:1	2.9	0.3	3.1
N	Tu		0:39	7:17	13:13	19:54		N	S		2:10	8:50	14:50	21:50	N	S		0:39	7:17	13:13	19:54
			2:8	0.2	2.9	0.3			W		2:4	0.4	2.8	0.3		W		2:8	0.2	2.9	0.3
C	F		1:31	8:08	14:10	20:59		C	Th		3:13	9:58	15:56	22:00	C	Th		1:31	8:08	14:10	20:59
			2:6	0.3	2.9	0.3			S		2:8	0.3	2.8	0.3		S		2:6	0.3	2.9	0.3
E	S		2:51	9:08	15:10	22:05		E	W		4:28	11:04	17:02	23:59	E	W		2:51	9:08	15:10	22:05
			2:5	0.3	2.9	0.3			Th		2:8	0.3	2.8	0.2		Th		2:5	0.3	2.9	0.3
N	Tu		8:34	10:10	16:12	23:10		N	S		5:36	12:07	18:02	24:11	N	S		8:34	10:10	16:12	23:10
			2:4	0.3	2.9	0.3			W		0:55	6:37	12:05	19:00		W		2:4	0.3	2.9	0.3
C	F		4:41	11:15	17:14	24:11		C	Th		0:1	2.5	0.0	2.9	C	Th		4:41	11:15	17:14	24:11
			2:4	0.3	2.9	0.3			S		1:48	7:30	13:57	19:50		S		2:4	0.3	2.9	0.3
E	S		0:11	5:48	12:15	18:14		E	W		2:40	8:17	14:45	20:36	E	W		0:11	5:48	12:15	18:14
			0:2	2.4	0.2	3.0			Th		-0:1	2.8	-0:1	3.1		Th		0:2	2.4	0.2	3.0
N	Tu		1:07	6:50	13:15	19:10		N	S		2:30	9:17	15:45	21:36	N	S		1:07	6:50	13:15	19:10
			0:0	2.5	0.1	3.0			W		-0:1	2.8	-0:1	3.1		W		0:0	2.5	0.1	3.0
C	F		2:00	7:45	14:09	20:08		C	Th		3:12	9:00	15:32	21:20	C	Th		2:00	7:45	14:09	20:08
			-0:1	2.6	0.0	3.1			S		-0:2	2.9	-0:1	3.0		S		-0:1	2.6	0.0	3.1
E	S		2:50	8:35	15:00	20:54		E	W		3:54	9:40	16:12	22:00	E	W		2:50	8:35	15:00	20:54
			-0:1	2.7	-0:1	3.1			Th		-0:2	2.9	-0:1	3.0		Th		-0:1	2.7	-0:1	3.1
N	Tu		3:35	9:22	15:51	21:41		N	S		4:34	10:20	16:55	22:44	N	S		3:35	9:22	15:51	21:41
			-0:2	2.6	-0:1	3.1			W		-0:1	2.9	0.0	2.9		W		-0:2	2.6	-0:1	3.1
C	F		4:20	10:09	16:40	22:28		C	Th		5:12	11:00	17:38	23:18	C	Th		4:20	10:09	16:40	22:28
			-0:2	2.8	-0:1	3.0			S		0:0	2.9	0.1	2.8		S		-0:2	2.8	-0:1	3.0
E	S		5:05	10:53	17:30	23:12		E	W		5:50	11:37	18:19	23:58	E	W		5:05	10:53	17:30	23:12
			-0:1	2.9	0.0	2.9			Th		0:1	2.9	0.2	2.6		Th		-0:1	2.9	0.0	2.9
N	Tu		5:49	11:37	18:15	23:54		N	S		6:40	12:27	19:00	24:44	N	S		5:49	11:37	18:15	23:54
			0:0	2.8	0.1	2.8			W		0:1	2.9	0.2	2.6		W		0:0	2.8	0.1	2.8
C	F		6:32	12:20	19:02	24:11		C	Th		7:24	13:11	19:44	25:11	C	Th		6:32	12:20	19:02	24:11
			0:1	2.8	0.2	2.8			S		8:16	14:02	20:35	25:44		S		0:1	2.8	0.2	2.8
E	S		0:39	7:16	13:08	19:51		E	W		9:08	14:59	21:32	26:11	E	W		0:39	7:16	13:08	19:51
			2:6	0.2	2.7	0.3			Th		0:0	2.9	0.1	2.8		Th		2:6	0.2	2.7	0.3

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon, ☿, 3rd quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day-of—		Time and Height of High and Low Water.		Moon.	Day-of—		Time and Height of High and Low Water.		Moon.	Day-of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	0:45 2.5	7:06 0.6	13:06 2.7	20:01 0.4	D	Tu	1	1:06 2.5	7:27 0.6	13:25 2.7	20:20 0.3	E	F	1	2:30 2.8	9:11 0.4	14:55 2.7	21:34 0.3
	M	2	1:36 2.4	8:04 0.6	13:59 2.7	20:58 0.4		W	2	2:08 2.5	8:35 0.6	14:24 2.7	21:15 0.5		S	2	3:29 2.9	10:15 0.3	15:55 2.6	22:30 0.2
	Tu	3	2:32 2.4	9:05 0.6	14:58 2.7	21:57 0.4		Th	3	3:00 2.6	9:40 0.4	15:26 2.7	22:12 0.3		S	3	4:26 3.0	11:15 0.1	16:52 2.7	23:22 0.2
	W	4	3:32 2.4	10:09 0.5	15:56 2.7	22:50 0.3		F	4	4:00 2.7	10:44 0.3	16:27 2.7	23:06 0.2		M	4	5:24 3.1	12:12 0.0	17:52 2.7	
	Th	5	4:31 2.5	11:10 0.3	17:00 2.8	23:45 0.2	E	S	5	4:57 2.9	11:39 0.1	17:22 2.8	23:58 0.1		Tu	5	0:18 0.1	6:17 3.2	18:06 -0.1	18:48 2.7
	F	6	5:27 2.7	12:04 0.2	17:55 2.9			S	6	5:50 3.1	12:32 -0.1	18:20 2.9		P	W	6	1:15 0.0	7:10 3.3	14:00 -0.2	19:50 2.8
	S	7	0:33 0.0	6:20 2.9	12:56 0.0	18:48 3.0		M	7	0:46 0.0	6:41 3.2	13:24 -0.2	19:12 2.9		Th	7	2:05 0.0	8:05 3.3	14:52 -0.3	20:38 2.8
E	S	8	1:21 -0.1	7:10 3.1	13:48 -0.2	19:40 3.1	O	Tu	8	1:40 -0.1	7:34 3.3	14:16 -0.3	20:03 3.0	S	F	8	3:00 -0.1	9:00 3.3	15:45 -0.3	21:30 2.8
O	M	9	2:05 -0.1	7:58 3.3	14:34 -0.3	20:25 3.1	P	W	9	2:25 -0.1	8:24 3.4	15:06 -0.3	20:55 2.9		S	9	3:55 0.0	9:54 3.3	16:38 -0.2	22:25 2.8
P	Tu	10	2:50 -0.2	8:46 3.3	15:25 -0.3	21:14 3.1		Th	10	3:15 -0.1	9:15 3.4	16:00 -0.3	21:45 2.9		S	10	4:50 0.0	10:45 3.1	17:34 -0.2	23:18 2.8
	W	11	3:39 -0.2	9:34 3.4	16:15 -0.3	22:01 3.0	S	F	11	4:08 0.0	10:07 3.3	16:55 -0.2	22:38 2.7		M	11	5:50 0.1	11:40 3.0	18:25 -0.1	
	Th	12	4:26 -0.1	10:25 3.3	17:08 -0.2	22:52 2.9		S	12	5:08 0.1	11:00 3.1	17:50 -0.1	23:35 2.7	C	Tu	12	0:15 2.7	6:50 0.1	12:38 2.8	19:20 0.0
	F	13	5:17 0.1	11:18 3.2	18:05 0.0	23:45 2.7		S	13	6:04 0.1	11:58 3.0	18:47 0.0			W	13	1:10 2.7	7:51 0.2	13:34 2.7	20:14 0.1
S	S	14	6:18 0.2	12:14 3.0	19:03 0.1			M	14	0:31 2.6	7:08 0.2	13:00 2.8	19:50 0.1		Th	14	2:05 2.7	8:50 0.2	14:30 2.5	21:10 0.1
C	S	15	0:45 2.5	7:20 0.3	13:16 2.8	20:08 0.2	C	Tu	15	1:32 2.5	8:14 0.2	14:00 2.7	20:48 0.2	E	F	15	3:00 2.7	9:48 0.2	15:26 2.4	22:00 0.2
	M	16	1:46 2.4	8:28 0.3	14:20 2.7	21:15 0.3		W	16	2:35 2.5	9:18 0.2	15:03 2.6	21:45 0.2		S	16	3:52 2.7	10:42 0.2	16:22 2.4	22:54 0.2
	Tu	17	2:55 2.4	9:36 0.3	15:28 2.6	22:20 0.2		Th	17	3:36 2.5	10:20 0.2	16:05 2.5	22:40 0.2		S	17	4:40 2.7	11:35 0.2	17:12 2.4	23:40 0.2
	W	18	4:02 2.4	10:41 0.2	16:32 2.6	23:14 0.2	E	F	18	4:30 2.6	11:14 0.2	17:00 2.5	23:30 0.1	A	M	18	5:25 2.7	12:17 0.2	18:05 2.4	
	Th	19	5:00 2.5	11:39 0.1	17:34 2.6			S	19	5:20 2.7	12:05 0.1	17:50 2.5			Tu	19	0:20 0.3	6:05 2.8	13:01 0.1	18:41 2.4
	F	20	0:05 0.1	5:52 2.6	12:30 0.0	18:20 2.7		S	20	0:20 0.1	6:05 2.8	12:50 0.1	18:36 2.5		W	20	1:05 0.3	6:47 2.8	13:40 0.1	19:24 2.4
E	S	21	0:51 0.1	6:38 2.8	13:16 0.0	19:07 2.7		M	21	1:00 0.1	6:43 2.8	13:30 0.0	19:16 2.5	●	Th	21	1:42 0.3	7:28 2.9	14:20 0.0	20:00 2.5
●	S	22	1:32 0.0	7:20 2.9	14:00 -0.1	19:48 2.7	A	Tu	22	1:38 0.2	7:25 2.9	14:10 0.0	19:52 2.5	N	F	22	2:20 0.4	8:05 3.0	15:00 0.0	20:38 2.5
	M	23	2:14 0.0	7:55 2.9	14:40 -0.1	20:25 2.7	●	W	23	2:20 0.2	8:00 2.9	14:46 0.0	20:30 2.6		S	23	2:56 0.4	8:45 3.0	15:40 0.0	21:25 2.6
	Tu	24	2:48 0.1	8:31 3.0	15:18 -0.1	21:00 2.7		Th	24	2:50 0.3	8:34 3.0	15:24 0.0	21:05 2.6		S	24	3:34 0.4	9:30 3.0	16:18 0.0	22:00 2.7
A	W	25	3:25 0.2	9:08 3.0	15:52 0.0	21:35 2.7		F	25	3:24 0.4	9:10 3.0	16:00 0.0	21:42 2.6		M	25	4:16 0.4	10:10 8.0	17:00 0.0	22:45 2.7
	Th	26	3:58 0.3	9:42 3.0	16:30 0.0	22:10 2.6	N	S	26	3:56 0.4	9:50 3.0	16:41 0.0	22:21 2.6		Tu	26	4:58 0.4	10:55 8.0	17:40 0.1	23:30 2.8
	F	27	4:30 0.4	10:20 3.0	17:08 0.1	22:49 2.6		S	27	4:34 0.5	10:33 2.9	17:22 0.1	23:05 2.6		W	27	5:48 0.4	11:44 2.9	18:29 0.1	
	S	28	5:04 0.5	11:00 2.9	17:50 0.2	23:30 2.6		M	28	5:17 0.5	11:17 2.9	18:08 0.2	23:51 2.6		Th	28	0:20 2.8	6:48 0.4	12:40 2.7	19:14 0.2
N	S	29	5:43 0.5	11:45 2.8	18:36 0.2			Tu	29	6:09 0.5	12:06 2.8	18:55 0.2		●	F	29	1:10 2.9	7:42 0.4	13:25 2.7	20:00 0.2
	M	30	0:16 2.5	6:30 0.6	12:34 2.8	19:24 0.3		W	30	0:42 2.7	7:05 0.5	12:58 2.8	19:45 0.3		S	30	2:02 2.9	8:46 0.3	14:21 2.6	21:00 0.3
							D	Th	31	1:35 2.7	8:06 0.5	13:54 2.7	20:38 0.3							

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●, new moon; ☾, 1st quar.; ☉, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.				
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.	
	W.	Mo.				W.	Mo.				W.	Mo.		
S	1		3:00	9:48	15:20	21:55	P	W	1	4:40	11:39	17:10	23:42	
			2.9	0.3	2.5	0.3				2.9	0.2	2.4	0.2	
M	2		4:00	10:52	16:25	22:56	S	Th	2	5:43	12:38	18:15		
			3.0	0.2	2.5	0.2				3.0	0.1	2.5		
Tu	3		5:00	11:54	17:30	23:55	F	3	0:44	6:43	13:34	19:15		
			3.0	0.1	2.5	0.2			0.1	3.0	0.0	2.6		
P	W	4	5:58	12:50	18:30		○	S	4	1:40	7:38	14:25	20:10	
			3.1	0.0	2.6				0.0	3.1	—0.1	2.7		
S	Th	5	0:55	6:55	13:46	19:30	S	5	2:35	8:30	15:12	21:00		
			0.1	3.2	—0.1	2.7			—0.1	3.1	—0.2	2.8		
○	F	6	1:52	7:50	14:40	20:24	M	6	3:27	9:20	15:59	21:47		
			0.0	3.2	—0.2	2.7			—0.1	3.1	—0.2	2.9		
	S	7	2:46	8:45	15:30	21:15	Tu	7	4:18	10:07	16:44	22:33		
			—0.1	3.2	—0.3	2.8			—0.2	3.1	—0.2	2.9		
	S	8	3:44	9:35	16:21	22:06	E	W	8	5:07	10:58	17:29	23:17	
			—0.1	3.2	—0.2	2.8			—0.1	3.0	—0.1	2.9		
	M	9	4:36	10:26	17:10	23:00	Th	9	5:53	11:38	18:13			
			—0.1	3.1	—0.2	2.8			0.0	2.8	0.0			
	Tu	10	5:30	11:20	18:00	23:50	F	10	0:01	6:42	12:21	18:59		
			0.0	3.0	—0.2	2.8			2.9	0.1	2.7	0.1		
	W	11	6:26	12:10	18:48		○	S	11	0:47	7:32	13:08	19:47	
			0.1	2.9	—0.1				2.8	0.2	2.5	0.3		
E	Th	12	0:38	7:20	13:00	19:40	S	12	1:33	8:24	13:58	20:34		
			2.7	0.1	2.7	0.1			2.7	0.4	2.4	0.4		
○	F	13	1:28	8:15	13:51	20:30	A	M	13	2:20	9:17	14:45	21:25	
			2.7	0.2	2.5	0.2			2.7	0.4	2.3	0.5		
	S	14	2:18	9:10	14:45	21:22	Tu	14	3:10	10:10	15:38	22:17		
			2.7	0.3	2.4	0.3			2.6	0.4	2.2	0.5		
	S	15	3:08	10:08	15:35	22:10	W	15	4:00	11:00	16:32	23:08		
			2.7	0.3	2.3	0.4			2.6	0.4	2.2	0.5		
A	M	16	3:57	10:55	16:25	23:00	N	Th	16	4:52	11:52	17:25	23:57	
			2.7	0.3	2.2	0.4			2.7	0.3	2.3	0.5		
	Tu	17	4:44	11:42	17:17	23:45	F	17	5:40	12:40	18:15			
			2.7	0.3	2.2	0.4			2.7	0.2	2.4			
	W	18	5:30	12:30	18:05		S	18	0:45	6:30	13:22	19:02		
			2.7	0.2	2.3				0.4	2.8	0.1	2.5		
N	Th	19	0:30	6:14	13:10	18:50	●	S	19	1:29	7:17	14:08	19:45	
			0.4	2.8	0.2	2.4			0.3	3.0	0.0	2.7		
	F	20	1:14	7:00	13:52	19:32	M	20	2:12	8:01	14:45	20:29		
			0.4	2.9	0.1	2.5			0.2	3.1	—0.1	2.9		
●	S	21	1:54	7:40	14:34	20:14	Tu	21	2:55	8:46	15:25	21:12		
			0.3	3.0	0.0	2.6			0.1	3.1	—0.1	3.0		
	S	22	2:36	8:22	15:15	20:56	W	22	3:40	9:31	16:05	21:55		
			0.3	3.0	—0.1	2.7			0.0	3.1	—0.1	3.1		
	M	23	3:16	9:07	15:54	21:38	E	Th	23	4:24	10:15	16:46	22:40	
			0.2	3.1	—0.1	2.8			0.0	3.1	—0.1	3.1		
	Tu	24	3:58	9:50	16:35	22:25	F	24	5:13	11:00	17:29	23:28		
			0.2	3.1	—0.1	2.9			0.0	3.0	0.0	3.1		
	W	25	4:40	10:35	17:15	23:08	S	25	6:05	11:49	18:16			
			0.2	3.1	0.0	3.0			0.1	2.8	0.1			
E	Th	26	5:30	11:28	17:58	23:54	○	S	26	0:19	7:00	12:37	19:07	
			0.2	3.0	0.0	3.0			3.0	0.2	2.7	0.3		
	F	27	6:21	12:10	18:41		P	M	27	1:15	8:03	13:34	20:08	
			0.2	2.9	0.1				3.0	0.3	2.5	0.4		
○	S	28	0:44	7:22	13:02	19:31	Tu	28	2:15	9:10	14:38	21:18		
			3.0	0.3	2.7	0.2			2.9	0.4	2.8	0.4		
	S	29	1:36	8:20	13:55	20:30	S	W	29	3:20	10:20	15:48	22:29	
			3.0	0.3	2.6	0.3			2.8	0.4	2.3	0.4		
	M	30	2:35	9:30	14:55	21:34	Th	30	4:28	11:26	17:00	23:34		
			2.9	0.3	2.4	0.4			2.8	0.3	2.3	0.2		
	Tu	31	3:36	10:34	16:00	22:36	F	31	5:33	12:27	18:05			
			2.9	0.3	2.4	0.3			2.8	0.2	2.4			

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OCTOBER.					NOVEMBER.					DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
E	M	1	1:15 -0.1	7:10 2.8	18:40 0.0	19:29 2.8	Th	1	2:22 -0.1	8:10 2.7	14:32 0.1	20:17 3.0	A	S	1	2:34 0.0	8:20 2.5	14:40 0.3	20:23 2.9	
	Tu	2	2:02 -0.1	7:56 2.9	14:23 -0.1	20:10 2.9	F	2	3:02 -0.1	8:47 2.7	15:10 0.1	20:55 3.0	S	2	3:12 0.0	8:55 2.6	15:18 0.3	21:00 2.9		
	W	3	2:46 -0.2	8:36 2.9	15:04 -0.1	20:49 3.0	S	3	3:40 0.0	9:25 2.6	15:48 0.2	21:30 2.9	N	M	3	3:50 0.0	9:33 2.6	15:54 0.4	21:40 2.9	
	Th	4	3:29 -0.2	9:15 2.8	15:43 0.0	21:27 3.0	A	S	4	4:18 0.0	10:00 2.6	16:24 0.3	22:10 2.9	Tu	4	4:30 0.0	10:10 2.6	16:31 0.5	22:20 2.9	
	F	5	4:09 -0.1	9:52 2.8	16:21 0.1	22:06 3.0	M	5	4:58 0.1	10:39 2.6	17:02 0.4	22:48 2.9	W	5	5:10 0.1	10:52 2.6	17:10 0.5	23:00 2.8		
A	S	6	4:48 0.0	10:31 2.7	16:58 0.2	22:44 2.9	N	Tu	6	5:40 0.2	11:20 2.5	17:40 0.5	23:30 2.8	Th	6	5:51 0.1	11:35 2.6	17:58 0.5	23:47 2.8	
	S	7	5:30 0.1	11:10 2.6	17:37 0.4	23:24 2.8	W	7	6:22 0.2	12:03 2.5	18:25 0.6		F	7	6:35 0.2	12:23 2.7	18:47 0.5			
	M	8	6:12 0.2	11:52 2.5	18:20 0.5		Th	8	0:16 2.7	7:10 0.3	12:51 2.5	19:20 0.6	C	S	8	0:35 2.7	7:22 0.3	13:15 2.7	19:42 0.5	
	Tu	9	0:05 2.8	6:59 0.3	12:35 2.4	19:08 0.6	C	F	9	1:07 2.7	8:00 0.4	13:45 2.5	20:20 0.6	S	9	1:30 2.7	8:12 0.3	14:06 2.8	20:44 0.4	
	W	10	0:52 2.7	7:49 0.4	13:22 2.4	19:57 0.6	S	10	2:01 2.6	8:53 0.4	14:40 2.6	21:19 0.5	E	M	10	2:25 2.6	9:06 0.3	15:01 2.8	21:46 0.3	
N	Th	11	1:42 2.6	8:41 0.4	14:17 2.3	20:56 0.6	S	11	3:00 2.6	9:47 0.3	15:35 2.7	22:20 0.4	Tu	11	3:23 2.6	9:58 0.3	16:00 2.9	22:45 0.2		
	F	12	2:38 2.6	9:37 0.4	15:14 2.4	21:55 0.6	M	12	3:59 2.7	10:39 0.2	16:30 2.8	23:15 0.2	W	12	4:20 2.6	10:53 0.2	16:53 3.0	23:43 0.1		
	S	13	3:35 2.6	10:30 0.3	16:11 2.5	22:52 0.4	E	Tu	13	4:55 2.7	11:30 0.2	17:23 3.0		Th	13	5:20 2.6	11:47 0.1	17:49 3.2		
	S	14	4:34 2.7	11:23 0.2	17:06 2.7	23:46 0.2	W	14	0:08 0.0	5:51 2.8	12:20 0.1	18:15 3.2	F	14	0:40 -0.1	6:20 2.7	12:42 0.1	18:45 3.3		
	M	15	5:30 2.8	12:10 0.1	17:57 2.9		Th	15	1:00 -0.1	6:45 2.8	13:08 0.0	19:07 3.3	P	S	15	1:34 -0.2	7:15 2.7	13:37 0.0	19:39 3.3	
E	Tu	16	0:36 0.1	6:22 2.9	12:55 0.0	18:45 3.1	P	F	16	1:51 -0.2	7:36 2.9	13:58 0.0	19:57 3.4	S	S	16	2:28 -0.3	8:10 2.8	14:10 0.0	20:31 3.4
	W	17	1:25 -0.1	7:12 3.0	13:41 -0.1	19:35 3.2	S	17	2:42 -0.3	8:28 2.9	14:48 -0.1	20:48 3.4	M	17	3:19 -0.3	9:06 2.8	15:27 -0.1	21:25 3.3		
	Th	18	2:11 -0.2	8:00 3.0	14:25 -0.1	20:20 3.3	S	18	3:34 -0.3	9:19 2.9	15:39 0.0	21:40 3.3	Tu	18	4:12 -0.3	9:59 2.8	16:25 0.0	22:19 3.2		
	F	19	3:00 -0.3	8:47 3.0	15:10 -0.1	21:08 3.3	S	M	19	4:26 -0.3	10:10 2.8	16:34 0.0	22:33 3.2	W	19	5:05 -0.2	10:53 2.8	17:20 0.0	23:13 3.1	
	S	20	3:50 -0.3	9:36 3.0	15:58 0.0	21:55 3.3	Tu	20	5:20 -0.2	11:05 2.7	17:32 0.1	23:29 3.1	Th	20	5:58 -0.1	11:47 2.8	18:20 0.1			
S	S	21	4:44 -0.2	10:25 2.9	16:48 0.0	22:48 3.2	W	21	6:17 0.0	12:02 2.7	18:36 0.2		F	21	0:10 2.9	6:53 -0.1	12:43 2.7	19:20 0.1		
	M	22	5:35 -0.1	11:17 2.7	17:43 0.2	23:42 3.1	D	Th	22	0:27 2.9	7:17 0.1	13:01 2.6	24:40 0.2	D	S	22	1:06 2.8	7:48 0.0	13:40 2.7	20:21 0.2
	Tu	23	6:33 0.0	12:14 2.6	18:45 0.3		F	23	1:28 2.7	8:17 0.1	14:05 2.6	20:48 0.2	E	S	23	2:08 2.6	8:43 0.1	14:33 2.7	21:20 0.2	
	W	24	0:43 2.9	7:35 0.2	18:14 2.5	19:53 0.3	S	24	2:38 2.6	9:17 0.1	15:05 2.6	21:50 0.2	M	24	3:00 2.5	9:37 0.1	15:28 2.7	22:16 0.2		
	Th	25	1:45 2.7	8:40 0.3	14:20 2.4	21:04 0.3	S	25	3:35 2.5	10:11 0.1	16:03 2.6	22:48 0.2	Tu	25	3:59 2.4	10:29 0.2	16:20 2.7	23:10 0.2		
E	F	26	2:52 2.6	9:45 0.3	15:28 2.4	22:10 0.3	E	M	26	4:35 2.5	11:03 0.1	16:55 2.7	23:40 0.1	W	26	4:54 2.3	11:17 0.2	17:08 2.7	23:59 0.2	
	S	27	4:00 2.6	10:43 0.2	16:30 2.5	23:11 0.2	Tu	27	5:30 2.5	11:53 0.1	17:43 2.8		Th	27	5:45 2.3	12:05 0.2	17:53 2.7			
	S	28	5:02 2.6	11:37 0.1	17:27 2.6		W	28	0:29 0.1	6:20 2.5	12:40 0.1	18:27 2.8	A	F	28	0:46 0.2	6:31 2.3	12:50 0.3	18:35 2.8	
	M	29	0:05 0.1	5:58 2.6	12:25 0.1	18:15 2.7	Th	29	1:14 0.0	7:03 2.5	13:21 0.2	19:06 2.9	S	29	1:29 0.1	7:11 2.4	13:32 0.3	19:16 2.8		
	Tu	30	0:54 0.0	6:48 2.6	13:11 0.0	18:58 2.9	O	F	30	1:55 0.0	7:44 2.5	14:01 0.2	19:46 2.9	N	S	30	2:08 0.1	7:50 2.4	14:12 0.3	19:55 2.9
O	W	31	1:40 -0.1	7:31 2.7	13:54 0.0	19:40 2.9							M	31	2:47 0.0	8:30 2.5	14:50 0.3	20:34 2.9		

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JANUARY.					FEBRUARY.					MARCH.							
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
E D	M 1	5:33	11:50	17:55	0.0	D A	Th 1	0:10	6:27	12:50	19:07	A	Th 1	4:57	11:19	17:31	23:25
		0.0	1.0	0.2				1.0	0.1	1.1	0.3			0.1	1.2	0.2	1.0
	Tu 2	0:04	6:30	12:53	19:01		F 2	0:53	7:10	13:40	20:02		F 2	5:39	12:07	18:21	23:25
A	W 3	0:56	7:16	13:40	20:00	S	3	1:39	7:57	14:31	21:00	D	S 3	0:08	6:25	12:58	19:15
		1.1	0.1	1.1	0.3			0.9	0.1	1.1	0.3			0.9	0.1	1.1	0.3
	Th 4	1:40	8:00	14:28	20:55		S 4	2:25	8:45	15:22	21:55		S 4	0:58	7:15	13:50	20:10
N	F 5	2:29	8:44	15:15	21:47	M	5	3:15	9:35	16:12	22:45	N	M 5	1:47	8:07	14:45	21:07
		1.0	0.0	1.1	0.3			0.9	0.0	1.2	0.3			0.9	0.1	1.2	0.3
	S 6	3:18	9:28	16:00	22:38	N	Tu 6	4:05	10:25	17:02	23:29		Tu 6	2:48	9:08	15:40	22:00
O		0.9	0.0	1.2	0.3			0.9	0.0	1.3	0.3			0.9	0.0	1.2	0.3
	S 7	3:58	10:10	16:45	23:23		W 7	4:58	11:15	17:50	24:15	O	W 7	3:40	10:00	16:30	22:55
		0.9	0.0	1.3	0.3	Th	8	1.0	-0.1	1.3	0.0			1.0	0.0	1.2	0.2
N	M 8	4:40	10:52	17:32	24:05			0:10	5:48	12:05	18:35		Th 8	4:36	10:54	17:19	23:32
		0.9	0.0	1.3	0.0	O	F 9	0:2	1.0	-0.1	1.3			1.1	-0.1	1.3	0.0
	Tu 9	0:05	5:24	11:38	18:15			0:50	6:38	12:54	19:19	E	F 9	5:29	11:46	18:07	23:32
O		0.3	0.9	-0.1	1.4		S 10	1:30	7:28	13:42	20:04			1.2	-0.1	1.3	0.0
	W 10	0:42	6:09	12:23	19:00	E		0.1	1.2	-0.1	1.3		S 10	0:19	6:20	12:36	18:54
		0.2	1.0	-0.1	1.4	P	S 11	2:13	8:18	14:30	20:50			0.1	1.3	-0.1	1.3
N	Th 11	1:21	6:56	13:12	19:46			0.0	1.2	-0.1	1.3	P	S 11	1:04	7:10	13:25	19:40
		0.2	1.0	-0.1	1.4		M 12	3:00	9:10	15:22	21:35			0.0	1.3	-0.2	1.3
	F 12	2:00	7:45	14:00	20:29	C		0.0	1.3	-0.1	1.3		M 12	1:46	8:00	14:15	20:28
E		0.1	1.1	-0.1	1.4		Tu 13	3:45	10:00	16:11	22:20			-0.1	1.4	-0.2	1.3
	S 13	2:42	8:35	14:48	21:12			-0.1	1.3	0.0	1.2	C	Tu 13	2:29	8:46	15:02	21:07
		0.1	1.1	-0.1	1.3	S	W 14	4:28	10:49	17:04	23:05			-0.1	1.4	-0.1	1.2
N	S 14	3:25	9:29	15:39	21:58			-0.1	1.3	0.0	1.1		W 14	3:13	9:38	15:51	21:52
		0.0	1.2	0.0	1.3	C	Th 15	5:18	11:43	17:56	23:54	E		-0.1	1.4	-0.1	1.2
	M 15	4:10	10:22	16:32	22:45			0.0	1.3	0.1	1.0		Th 15	4:00	10:25	16:42	22:40
E		0.0	1.2	0.0	1.2	F		6:10	12:41	18:57	24:45			0.1	1.4	0.0	1.1
	Tu 16	4:59	11:12	17:24	23:34			0.0	1.3	0.2	0.0	C	F 16	4:51	11:20	17:38	23:34
		0.0	1.2	0.1	1.1	S	S 17	0:50	7:05	13:42	20:02			0.0	1.3	0.1	1.0
O	W 17	5:45	12:08	18:20	20:55			1.0	0.0	1.3	0.2		S 17	5:46	12:16	18:37	23:25
		0.0	1.3	0.1	1.1	S		1.0	0.0	1.3	0.2	S		0.0	1.3	0.2	0.0
	Th 18	0:20	6:38	13:05	19:20		S 18	1:51	8:07	14:43	21:13		S 18	0:31	6:41	13:17	19:45
P		1.1	0.0	1.3	0.2	S		0.9	0.0	1.2	0.3			1.0	0.1	1.2	0.2
	F 19	1:12	7:30	14:05	20:25		M 19	2:58	9:10	15:41	22:16	M	M 19	1:45	7:52	14:19	20:53
		1.0	0.0	1.3	0.2	Tu		0.9	0.0	1.2	0.2			1.0	0.1	1.2	0.2
S	S 20	2:09	8:26	15:03	21:30		Tu 20	4:05	10:13	16:40	23:18		Tu 20	2:57	9:01	15:21	21:55
		1.0	0.0	1.3	0.2	W		1.0	0.0	1.2	0.2	W		0.9	0.1	1.2	0.2
	S 21	3:07	9:25	16:00	22:35		W 21	5:08	11:12	17:32	24:15		W 21	4:02	10:07	16:20	21:50
N		0.9	0.0	1.3	0.2	Th		1.0	0.0	1.3	0.0	Th		1.0	0.1	1.2	0.1
	M 22	4:08	10:21	16:58	23:31		Th 22	0:05	6:05	12:08	18:22		Th 22	5:02	11:07	17:16	23:40
		1.0	-0.1	1.4	0.2	F		0.1	1.0	0.0	1.3	F		1.1	0.1	1.2	0.1
O	Tu 23	5:10	11:19	17:50	24:25		F 23	0:52	6:56	13:00	19:10		F 23	5:52	12:01	18:10	23:35
		1.0	-0.1	1.4	0.0	S		0.1	1.1	0.0	1.3			1.1	0.1	1.2	0.0
	W 24	0:23	6:10	12:13	18:40	E	S 24	1:37	7:43	13:50	20:00	E	S 24	0:25	6:38	12:50	18:54
N		0.1	1.0	-0.1	1.4			0.0	1.1	0.0	1.3			0.0	1.2	0.0	1.2
	Th 25	1:13	7:07	13:08	19:30		S 25	2:18	8:28	14:38	20:45		S 25	1:06	7:18	13:31	19:35
P		0.1	1.0	0.0	1.4	M		0.0	1.2	0.0	1.2	M		0.0	1.2	0.0	1.2
	F 26	2:00	8:00	14:02	20:18		M 26	3:00	9:12	15:23	21:25		M 26	1:44	7:56	14:11	20:13
		0.1	1.1	0.0	1.3	Tu		0.0	1.2	0.1	1.2			0.0	1.2	0.0	1.1
S	S 27	2:48	8:52	14:54	21:05		Tu 27	3:37	9:54	16:05	22:06	A	Tu 27	2:21	8:34	14:52	20:50
		0.0	1.1	0.0	1.3	W		0.0	1.2	0.1	1.1			0.0	1.3	0.1	1.1
	S 28	3:33	9:44	15:45	21:56		W 28	4:15	10:35	16:48	22:46		W 28	2:57	9:14	15:33	21:28
E		0.0	1.1	0.1	1.5	Th		0.0	1.2	0.2	1.0			0.0	1.3	0.1	1.0
	M 29	4:19	10:32	16:37	22:42	F		0.0	1.1	0.1	1.2	F	Th 29	3:35	9:56	16:15	22:05
		0.0	1.1	0.1	1.2			0.0	1.1	0.1	1.2			0.0	1.3	0.2	1.0
O	Tu 30	5:01	11:20	17:29	23:26			0.0	1.1	0.2	1.1			4:14	10:41	16:58	22:45
		0.0	1.1	0.2	1.1	S		0.0	1.1	0.2	1.0			0.1	1.2	0.2	0.9
	W 31	5:45	12:05	18:20	23:28			0.0	1.1	0.2	0.9		S 31	4:55	11:28	17:44	23:28
N		0.0	1.1	0.2	0.9	D		0.0	1.1	0.2	0.8			0.1	1.2	0.3	0.9

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 0.6 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.  
 ●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.													
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								
	W.	Mo.										W.	Mo.										W.	Mo.									
N	S	1	5:46	12:17	18:33	0.1	1.2	0.3			D	Tu	1	6:08	12:35	18:54	0.1	1.2	0.2				F	1	1:29	7:42	18:55	20:04	1.1	0.1	1.1	0.1	
	M	2	0:22	6:38	13:11	0.9	0.1	1.2	0.8			W	2	0:58	7:08	13:29	1.0	0.1	1.1	0.2			E	S	2	2:24	8:42	14:45	20:55	1.2	0.1	1.1	0.0
	Tu	3	1:20	7:36	14:06	0.9	0.1	1.1	0.3			Th	3	1:59	8:10	14:26	1.0	0.1	1.1	0.1			S	3	3:20	9:42	15:35	21:41	1.3	0.1	1.1	-0.1	
	W	4	2:21	8:36	15:02	1.0	0.1	1.1	0.2			F	4	2:54	9:11	15:25	1.1	0.1	1.1	0.1			M	4	4:16	10:39	16:25	22:36	1.4	0.1	1.1	-0.1	
	Th	5	3:20	9:35	15:51	1.1	0.0	1.2	0.1		E	S	5	3:48	10:09	16:15	1.3	0.0	1.1	0.0			Tu	5	5:08	11:33	17:16	23:27	1.5	0.0	1.1	-0.2	
	F	6	4:16	10:32	16:49	1.2	0.0	1.2	0.1			S	6	4:39	11:03	17:03	1.4	0.0	1.1	-0.1		P	W	6	6:00	12:25	18:08		1.5	0.0	1.1		
	S	7	5:09	11:26	17:39	1.3	-0.1	1.2	0.0			M	7	5:31	11:55	17:49	1.5	-0.1	1.1	-0.1		O	Th	7	0:18	6:50	13:16	18:57	-0.2	1.6	0.0	1.1	
E	S	8	5:59	12:17	18:24	1.4	-0.1	1.2			P	Tu	8	6:21	12:45	18:36	1.5	-0.1	1.1			S	F	8	1:08	7:41	14:08	19:55	-0.1	1.5	0.0	1.1	
O	M	9	0:28	6:45	13:06	-0.1	1.5	-0.2	1.2			W	9	0:42	7:11	13:35	-0.2	1.6	-0.1	1.1			S	9	2:02	8:32	15:00	20:53	-0.1	1.5	0.0	1.0	
P	Tu	10	1:12	7:31	13:54	-0.1	1.5	-0.1	1.2			Th	10	1:30	8:00	14:25	-0.2	1.6	0.0	1.1			S	10	2:57	9:23	15:54	21:55	0.0	1.4	0.0	1.0	
	W	11	1:57	8:20	14:43	-0.1	1.5	-0.1	1.2		S	F	11	2:20	8:51	15:17	-0.1	1.5	0.0	1.1			M	11	3:55	10:15	16:48	22:58	0.0	1.3	0.0	1.0	
	Th	12	2:44	9:13	15:34	-0.1	1.4	0.0	1.1			S	12	3:13	9:43	16:11	-0.1	1.5	0.0	1.0			Tu	12	4:59	11:17	17:43		0.1	1.3	0.0		
	F	13	3:34	10:03	16:22	-0.1	1.4	0.0	1.1			S	13	4:10	10:37	17:08	0.0	1.4	0.1	1.0		C	W	13	0:02	6:06	12:11	18:37	1.0	0.2	1.2	0.0	
S	S	14	4:27	10:58	17:23	0.0	1.3	0.1	1.0			M	14	5:12	11:32	18:08	0.1	1.3	0.1				Th	14	1:02	7:14	13:15	19:30	1.0	0.2	1.2	0.0	
C	S	15	5:26	11:55	18:25	0.1	1.3	0.2			C	Tu	15	0:19	6:22	12:33	1.0	0.2	1.2	0.1		E	F	15	2:00	8:18	14:00	20:19	1.1	0.2	1.1	0.0	
	M	16	0:28	6:31	12:55	1.0	0.1	1.2	0.2			W	16	1:28	7:30	13:39	1.0	0.2	1.1	0.1			S	16	2:50	9:20	14:50	21:06	1.1	0.3	1.0	0.0	
	Tu	17	1:40	7:44	13:57	1.0	0.2	1.1	0.2			Th	17	2:30	8:47	14:38	1.0	0.2	1.1	0.1			S	17	3:37	10:15	15:40	21:50	1.1	0.3	1.0	0.0	
	W	18	2:50	8:52	15:04	1.0	0.2	1.1	0.1		E	F	18	3:25	9:47	15:31	1.1	0.2	1.1	0.0		A	M	18	4:22	11:05	16:25	22:32	1.2	0.3	1.0	0.0	
	Th	19	3:50	10:03	16:06	1.0	0.2	1.1	0.0			S	19	4:13	10:40	16:20	1.1	0.2	1.0	0.0			Tu	19	5:06	11:49	17:06	23:12	1.2	0.3	1.1	0.0	
	F	20	4:40	10:56	16:56	1.1	0.1	1.1	0.0			S	20	4:57	11:28	17:05	1.2	0.2	1.0	0.0			W	20	5:46	12:28	17:47	23:58	1.3	0.2	1.1	0.0	
E	S	21	5:25	11:44	17:41	1.2	0.1	1.1	0.0			M	21	5:38	12:12	17:44	1.3	0.2	1.0	0.0		●	Th	21	6:27	13:05	18:25		1.3	0.2	1.1		
	S	22	6:07	12:30	18:23	1.2	0.1	1.1			A	Tu	22	6:16	12:51	18:24	1.3	0.2	1.0			N	F	22	0:35	7:10	13:40	19:05	0.0	1.4	0.2	0.9	
●	M	23	0:28	6:46	13:10	0.0	1.3	0.1	1.1		●	W	23	0:27	6:50	13:28	0.0	1.4	0.2	1.0			S	23	1:17	7:52	14:17	19:48	0.0	1.4	0.2	0.9	
	Tu	24	1:05	7:21	13:49	0.0	1.3	0.1	1.0			Th	24	1:05	7:36	14:05	0.0	1.4	0.2	0.9			S	24	2:00	8:35	14:56	20:35	0.0	1.4	0.2	1.0	
A	W	25	1:42	8:04	14:28	0.0	1.3	0.1	1.0			F	25	1:44	8:17	14:42	0.0	1.4	0.2	0.9			M	25	2:47	9:18	15:37	21:25	0.0	1.3	0.1	1.0	
	Th	26	2:19	8:44	15:06	0.0	1.3	0.1	1.0		N	S	26	2:25	8:59	15:22	0.0	1.4	0.2	0.9			Tu	26	3:35	10:03	16:20	22:19	0.0	1.3	0.1	1.0	
	F	27	2:56	9:25	15:46	0.0	1.3	0.2	1.0			S	27	3:08	9:43	16:04	0.0	1.3	0.2	0.9			W	27	4:27	10:47	17:03	23:14	0.0	1.2	0.1	1.1	
	S	28	3:37	10:09	16:29	0.1	1.3	0.2	0.9			M	28	3:55	10:28	16:49	0.1	1.3	0.2	1.0			Th	28	5:20	11:38	17:51		0.1	1.2	0.0		
N	S	29	4:22	10:55	17:14	0.1	1.2	0.2	0.9			Tu	29	4:47	11:15	17:30	0.1	1.2	0.2	1.0		D	F	29	0:06	6:16	12:28	18:39	1.1	0.1	1.1	0.0	
	M	30	5:12	11:44	18:03	0.1	1.2	0.2	0.9			W	30	5:43	12:04	18:23	0.1	1.2	0.1			E	S	30	1:00	7:18	13:15	19:30	1.2	0.1	1.1	0.0	
											D	Th	31	0:35	6:43	12:58	1.1	0.1	1.1	0.1													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 0.6 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight; 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E., moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

Moon.	Day.					Moon.	Day.					Moon.	Day.				
		h	m	s	h			h	m	s	h			h	m	s	h
P	S 1	1:59	8:14	14:06	20:22	P	W 1	3:30	9:57	15:25	21:52	P	S 1	5:05	11:32	17:35	23:43
	M 2	2:47	9:15	14:58	21:15		Th 2	4:28	10:58	16:11	22:50		2	5:57	12:20	18:29	24:38
	Tu 3	3:52	10:17	15:54	22:01		F 3	5:23	11:53	17:00	23:43		M 3	6:57	13:09	19:19	25:31
S	W 4	4:47	11:19	16:50	22:50	S	Th 4	6:15	12:43	17:51	24:38	S	Tu 4	7:40	13:50	20:06	26:22
	Th 5	5:40	12:09	17:43	23:38		S 5	6:44	13:32	18:32	25:31		W 5	8:24	14:33	20:50	27:14
	F 6	6:32	13:02	18:45	24:22		M 6	7:29	14:24	19:24	26:22		Th 6	9:04	15:14	21:32	28:06
E	S 7	7:25	13:58	19:42	25:08	E	Tu 7	8:00	15:16	20:16	27:14	E	F 7	9:45	16:05	22:15	28:58
	S 8	8:14	14:50	20:41	25:54		W 8	8:56	16:05	21:05	28:06		S 8	10:28	16:58	23:02	29:50
	M 9	9:08	15:33	21:40	26:40		Th 9	9:48	16:56	22:05	29:06		M 9	11:10	17:20	23:50	30:42
A	Tu 10	9:56	16:23	22:37	27:26	A	F 10	10:40	17:41	23:05	30:06	A	Tu 10	11:54	18:06	24:42	31:34
	W 11	10:40	17:13	23:35	28:12		S 11	11:20	18:30	24:05	31:06		W 11	12:40	18:54	25:30	32:26
	Th 12	11:40	18:03	24:22	29:06		Th 12	12:08	19:16	25:05	32:06		Th 12	1:32	19:46	26:22	33:18
C	F 13	12:23	18:50	25:08	30:06	C	M 13	1:28	20:05	26:05	33:06	C	F 13	2:26	20:34	27:14	34:10
	S 14	1:18	19:38	25:54	31:06		Tu 14	2:15	20:56	27:05	34:06		S 14	3:20	21:05	28:22	35:02
	S 15	2:08	20:26	26:40	32:06		W 15	3:06	21:46	28:05	35:06		S 15	4:12	21:36	29:30	35:54
N	M 16	2:57	21:10	27:26	33:06	N	Th 16	3:56	22:36	29:05	36:06	N	M 16	5:00	22:06	30:30	36:46
	Tu 17	3:45	21:54	28:12	34:06		F 17	4:48	23:26	30:05	37:06		Tu 17	5:47	22:36	31:42	37:38
	W 18	4:32	22:38	29:06	35:06		S 18	5:32	24:16	31:05	38:06		W 18	6:34	23:06	32:54	38:30
E	Th 19	5:27	23:26	30:06	36:06	E	S 19	6:17	25:06	32:05	39:06	E	Th 19	7:18	23:36	34:06	39:22
	F 20	6:00	24:06	31:06	37:06		M 20	6:56	25:56	33:05	40:06		F 20	8:24	24:06	35:18	40:14
	S 21	6:49	24:54	32:06	38:06		Tu 21	7:43	26:46	34:05	41:06		S 21	9:47	24:36	36:30	41:06
A	S 22	7:36	25:40	33:06	39:06	A	W 22	8:28	27:36	35:05	42:06	A	S 22	10:28	25:06	37:42	41:98
	M 23	8:11	26:26	34:06	40:06		Th 23	9:13	28:26	36:05	43:06		M 23	11:10	25:36	38:54	42:90
	Tu 24	8:58	27:10	35:06	41:06		F 24	9:56	29:16	37:05	44:06		Tu 24	11:54	26:06	39:54	43:82
C	W 25	9:37	27:57	36:06	42:06	C	S 25	10:40	30:06	38:05	45:06	C	W 25	12:40	26:36	41:06	44:74
	Th 26	10:22	28:43	37:06	43:06		Th 26	11:20	30:56	39:05	46:06		Th 26	1:32	27:06	42:18	45:66
	F 27	11:10	29:26	38:06	44:06		M 27	12:08	31:46	40:05	47:06		F 27	2:26	27:36	43:30	46:58
D	S 28	12:00	30:06	39:06	45:06	D	Tu 28	1:07	32:36	41:05	48:06	D	S 28	3:20	28:06	44:42	47:90
	S 29	12:42	30:54	40:06	46:06		W 29	1:56	33:26	42:05	49:06		S 29	4:12	28:36	45:54	48:82
	M 30	1:33	31:46	41:06	47:06		Th 30	2:48	34:16	43:05	50:06		M 30	5:00	29:06	47:06	49:74
	Tu 31	2:31	32:36	42:06	48:06		F 31	3:40	35:06	44:05	51:06		Tu 31	5:57	29:36	48:18	50:66

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 0.6 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.				
Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.		
	W. Mo.					W. Mo.					W. Mo.			
O	M 1	5:45 1.2	11:56 0.0	18:10 1.2		Th 1	1:00 0.1	6:40 1.0	12:43 -0.1	19:08 1.3	A S 1	1:24 0.2	6:47 0.9	12:48 0.0
	Tu 2	0:27 0.0	6:30 1.2	12:38 0.0		F 2	1:40 0.1	7:19 1.0	13:22 0.0	19:48 1.4	S 2	2:00 0.2	7:22 0.9	13:30 0.0
	W 3	1:12 0.0	7:11 1.1	13:18 0.0		S 3	2:18 0.1	7:57 1.0	14:00 0.0	20:30 1.4	N M 3	2:37 0.2	8:04 0.9	14:11 0.0
	Th 4	1:56 0.1	7:52 1.1	13:58 0.1	A S 4	2:58 0.2	8:35 0.9	14:40 0.0	21:12 1.3		Tu 4	3:15 0.2	8:46 0.9	14:54 0.0
	F 5	2:40 0.1	8:31 1.1	14:37 0.0	M 5	3:38 0.2	9:16 0.9	15:22 0.1	21:55 1.3		W 5	3:54 0.2	9:33 0.9	15:39 0.1
A	S 6	3:20 0.1	9:11 1.0	15:16 0.0	N Tu 6	4:20 0.2	10:00 0.9	16:05 0.1	22:40 1.3		Th 6	4:35 0.2	10:22 0.9	16:30 0.1
	S 7	4:03 0.2	9:50 1.0	15:58 0.0	W 7	5:06 0.2	10:48 0.9	16:55 0.1	23:27 1.2		F 7	5:20 0.2	11:18 1.0	17:22 0.1
	M 8	4:46 0.2	10:35 0.9	16:41 0.1	Th 8	5:52 0.2	11:42 0.9	17:50 0.2			S 8	6:06 0.1	12:15 1.0	18:20 0.1
	N Tu 9	5:33 0.3	11:18 0.9	17:30 0.1	C F 9	6:17 1.2	12:40 0.2	18:47 0.9	23:27 0.2		S 9	6:37 1.1	12:40 0.1	19:20 1.1
	C W 10	0:02 1.2	6:25 0.3	12:08 0.9	S 10	1:08 1.1	7:30 0.2	13:40 1.0	19:47 0.1		E M 10	1:28 1.1	7:40 1.0	14:00 1.2
C	Th 11	0:54 1.1	7:17 0.3	13:06 0.9	S 11	2:04 1.1	8:20 0.1	14:35 1.1	20:47 0.1		Tu 11	2:18 1.1	8:30 1.0	14:54 1.3
	F 12	1:47 1.1	8:10 0.3	14:06 0.9	M 12	3:00 1.1	9:10 0.1	15:25 1.2	21:45 0.0		W 12	3:05 1.1	9:20 -0.1	15:50 1.4
	S 13	2:40 1.1	9:00 0.2	15:04 1.0	E Tu 13	3:50 1.1	9:57 0.0	16:16 1.3	22:38 0.0		Th 13	3:57 1.1	10:10 -0.1	16:44 1.5
	S 14	3:34 1.1	9:48 0.1	15:58 1.1	W 14	4:36 1.1	10:44 -0.1	17:08 1.4	23:30 0.0		F 14	4:46 1.1	11:00 -0.2	17:35 1.5
	M 15	4:28 1.2	10:40 0.1	16:50 1.2	Th 15	5:23 1.1	11:30 -0.1	17:57 1.5		P S 15	5:40 1.1	11:55 -0.2	18:25 1.5	
E	Tu 16	5:17 1.2	11:24 0.0	17:38 1.4	● F 16	6:10 -0.1	12:16 1.1	18:46 -0.2	19:46 1.6		S S 16	6:31 0.0	12:44 1.1	19:17 -0.2
	● W 17	6:00 1.2	12:05 -0.1	18:22 1.5	S 17	1:10 -0.1	6:56 1.1	13:05 -0.2	19:36 1.6		M 17	1:40 0.0	7:28 1.1	13:36 -0.1
	Th 18	0:44 -0.1	6:45 1.2	12:49 -0.1	S 18	2:00 0.0	7:45 1.1	13:54 -0.1	20:26 1.5		Tu 18	2:33 0.0	8:25 1.1	14:31 -0.1
	P F 19	1:30 -0.1	7:28 1.2	13:35 -0.1	S M 19	2:50 0.0	8:40 1.1	14:46 -0.1	21:18 1.5		W 19	3:25 0.0	9:26 1.1	15:30 0.0
	S 20	2:18 -0.1	8:15 1.2	14:17 -0.1	Tu 20	3:42 0.0	9:36 1.1	15:42 0.0	22:10 1.4		Th 20	4:18 0.0	10:26 1.1	16:32 0.1
S	S 21	3:07 0.1	9:00 1.1	15:07 -0.1	W 21	4:38 0.0	10:38 1.0	16:42 0.1	23:04 1.3		F 21	5:12 0.0	11:30 1.1	17:40 0.1
	S M 22	3:58 0.0	9:52 1.1	15:58 0.0	D Th 22	5:34 0.1	11:45 1.0	17:50 0.1		D S 22	6:07 0.0	12:30 1.1	18:44 0.2	
	Tu 23	4:52 0.1	10:50 1.0	16:55 0.0	F 23	6:04 1.2	12:58 0.1	19:02 1.0		E S 23	6:38 1.1	7:00 1.0	13:25 1.1	
	D W 24	5:50 0.1	11:54 1.0	18:00 0.1	S 24	1:08 1.1	7:30 1.0	13:55 1.1	20:12 0.2		M 24	1:30 1.0	7:52 0.0	14:22 1.1
	Th 25	0:22 1.2	6:54 0.1	13:05 1.0	S 25	2:05 1.1	8:27 0.0	14:52 1.1	21:18 0.2		Tu 25	2:25 1.0	8:40 0.0	15:15 1.1
E	F 26	1:24 1.1	7:55 0.1	14:12 1.0	E M 26	3:02 1.0	9:17 0.0	15:46 1.1	22:20 0.2		W 26	3:15 1.0	9:30 0.0	16:04 1.2
	S 27	2:35 1.1	8:55 0.1	15:13 1.1	Tu 27	3:54 1.0	10:05 0.0	16:34 1.2	23:15 0.2		Th 27	4:05 0.9	10:12 0.0	16:50 1.2
	S 28	3:35 1.1	9:50 0.1	16:10 1.1	W 28	4:40 1.0	10:48 0.0	17:20 1.3		A F 28	4:50 0.9	10:55 0.0	17:34 1.3	
	E M 29	4:30 1.1	10:38 0.0	17:00 1.2	Th 29	5:03 0.2	11:30 1.0	18:00 -0.1		S 29	5:27 0.8	11:37 0.9	18:15 0.0	
	Tu 30	5:17 1.1	11:23 0.0	17:46 1.3	○ F 30	5:46 0.2	12:10 1.0	18:41 -0.1		○ S 30	1:04 0.3	6:15 0.9	12:20 0.0	
○ W 31		0:15 0.1	6:00 1.1	12:04 -0.1						M 31	1:38 0.2	6:55 0.9	13:05 0.0	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 0.6 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.																					
Mo.	Day of Mo.	Time and Height of High and Low Water.				Mo.	D					Mo.	D					Mo.	D		
	M 1	2:25	9:50	14:26	22:05		Th 1	3:25	10:38	16:30	22:30		Th 1	1:58	9:10	14:10	21:06				
		2.8	0.4	2.2	0.1			2.4	0.5	2.0	0.4			2.5	0.4	2.1	0.4				
E	Tu 2	3:19	10:30	15:18	22:37		F 2	4:10	11:27	16:18	22:37		F 2	2:42	9:53	14:57	21:21				
		2.3	0.5	2.1	0.2			2.5	0.5	1.9	0.5			2.5	0.5	2.0	0.4				
	W 3	4:07	11:21	16:07	23:20		S 3	4:58	12:17	17:10	23:10		S 3	3:30	10:40	15:45	21:50				
		2.3	0.5	2.0	0.3			2.5	0.5	1.9	0.5			2.5	0.5	2.0	0.5				
A	Th 4	4:53	12:11	16:55	23:56		S 4	5:48	13:11	18:06	23:45		S 4	4:18	11:27	16:33	22:21				
		2.4	0.5	1.9	0.4			2.6	0.5	1.9	0.5			2.5	0.5	1.9	0.5				
	F 5	5:40	13:02	17:45			M 5	6:37	14:05	18:55			N	M 5	5:10	12:23	17:32	23:15			
		2.5	0.5	1.9				2.6	0.4	1.9				2.6	0.5	2.0	0.5				
	S 6	6:06	6:24	13:02	18:37		N	Tu 6	6:58	7:28	14:56	19:49		Tu 6	6:08	13:20	18:26				
		0.5	2.6	0.4	1.6			0.5	2.7	0.3	2.0			2.6	0.4	2.0					
	S 7	6:26	7:10	14:42	19:25		W 7	1:34	8:18	15:44	20:40		W 7	0:14	7:00	14:12	19:22				
		0.5	2.7	0.4	1.9			0.4	2.8	0.2	2.1			0.4	2.6	0.4	2.2				
	M 8	1:05	7:58	15:30	20:16		Th 8	2:34	9:10	16:32			Th 8	1:30	7:58	15:07	20:16				
		0.5	2.7	0.3	1.9			0.4	2.8	0.2	2.3			0.4	2.7	0.3	2.3				
N	Tu 9	1:50	8:45	16:18	21:05		○	F 9	4:03	10:00	17:18	22:24		F 9	2:52	8:45	15:33	21:08			
		0.5	2.8	0.2	2.0			0.3	2.8	0.1	2.4			0.3	2.7	0.2	2.5				
○	W 10	2:40	9:31	17:02	21:55		S 10	5:15	10:48	18:01	23:15		○	S 10	4:05	9:36	16:40	22:40			
		0.5	2.9	0.1	2.1			0.3	2.8	0.1	2.5			0.2	2.7	0.1	2.7				
	Th 11	3:43	10:20	17:48	22:48		S 11	6:16	11:39	18:45			E	S 11	5:07	10:25	17:28	22:50			
		0.4	2.9	0.1	2.2			0.2	2.7	0.0				0.1	2.7	0.1	2.8				
	F 12	4:55	11:10	18:32	23:38		E	M 12	6:07	7:13	12:27	19:30		P	M 12	6:02	11:16	18:17	23:43		
		0.4	2.9	0.1	2.3			2.6	0.2	2.6	0.0				0.1	2.6	0.0	2.9			
	S 13	6:10	11:56	19:14			P	Tu 13	1:00	8:10	13:17	20:12		Tu 13	6:59	12:05	19:02				
		0.4	2.8	0.0				2.7	0.2	2.5	0.0				0.0	2.5	0.0				
	S 14	6:23	7:19	12:47	19:58		W 14	1:50	9:04	14:06	21:01		W 14	0:35	7:32	12:55	19:32				
		2.4	0.3	2.7	0.0			2.8	0.2	2.3	0.1			2.9	0.0	2.4	0.0				
	M 15	1:20	8:18	13:36	20:40		○	Th 15	2:45	10:00	14:56			Th 15	1:27	8:45	13:45	20:45			
		2.6	0.3	2.5	0.1			2.3	0.3	2.2	0.1			2.9	0.1	2.3	0.1				
E	Tu 16	2:12	9:20	14:29	21:20		F 16	3:39	10:56	15:50	22:42		F 16	2:20	9:40	14:37	21:39				
		2.6	0.4	2.4	0.1			2.7	0.3	2.1	0.2			2.3	0.1	2.2	0.2				
○	W 17	3:07	10:15	15:18	22:02		S 17	4:35	11:55	16:45	23:42		○	S 17	3:17	10:35	15:30	22:39			
		2.7	0.4	2.2	0.1			2.7	0.3	2.0	0.3			2.7	0.2	2.1	0.2				
	Th 18	4:02	11:16	16:12	22:50		S 18	5:31	12:55	17:41			S 18	4:10	11:32	16:30	23:40				
		2.7	0.3	2.1	0.2			2.6	0.3	2.0				2.6	0.3	2.0	0.3				
	F 19	4:59	12:18	17:07	23:50		S	M 19	6:50	6:27	13:50	18:40		M 19	5:07	12:27	17:27				
		2.7	0.3	2.0	0.2			0.3	2.6	0.3	2.0			2.5	0.3	2.0					
P	S 20	5:53	13:17	18:02			Tu 20	1:52	7:20	14:45	19:36		Tu 20	0:44	6:02	13:25	18:26				
		2.8	0.3	2.0				0.3	2.6	0.2	2.0			0.3	2.4	0.3	2.0				
	S 21	6:45	6:49	14:15	18:59		W 21	2:55	8:10	15:35			W 21	1:45	6:55	14:18	19:21				
		0.3	2.3	0.2	2.0			0.3	2.6	0.2	2.1			0.4	2.4	0.3	2.1				
S	M 22	1:57	7:42	15:09	19:55		Th 22	3:50	8:57	16:24	21:23		Th 22	2:42	7:43	15:08	20:12				
		0.3	2.3	0.2	2.0			0.3	2.5	0.1	2.2			0.3	2.3	0.3	2.2				
	Tu 23	3:00	8:33	16:00	20:50		●	F 23	4:42	9:43	17:10	22:12		F 23	3:35	8:30	15:55	21:00			
		0.3	2.3	0.1	2.1			0.3	2.5	0.1	2.3			0.3	2.3	0.2	2.3				
●	W 24	4:01	9:21	16:50	21:45		S 24	5:32	10:27	17:53	23:00		●	S 24	4:23	9:15	16:40	21:45			
		0.3	2.3	0.0	2.1			0.3	2.5	0.1	2.4			0.3	2.3	0.2	2.4				
	Th 25	4:59	10:10	17:38	22:37		E	S 25	6:18	11:12	18:38		E	S 25	5:09	9:58	17:22	22:28			
		0.3	2.7	0.0	2.2			0.3	2.4	0.1	2.4			0.3	2.3	0.2	2.5				
	F 26	5:51	10:55	18:23	23:28		M 26	7:01	11:55	19:17			M 26	5:52	10:41	18:01	23:10				
		0.3	2.7	0.0	2.3			0.3	2.4	0.2				0.3	2.3	0.2	2.5				
	S 27	6:42	11:42	19:08			Tu 27	0:29	7:45	12:40	19:57		Tu 27	6:33	11:25	18:38	23:55				
		0.3	2.6	0.0				2.5	0.4	2.3	0.2			0.3	2.2	0.3	2.6				
	S 28	6:20	7:31	12:37	19:52		W 28	1:12	8:30	13:24			A	W 28	7:14	12:10	19:16				
		2.3	0.4	2.5	0.0			2.5	0.4	2.2	0.3			0.3	2.2	0.4					
E	M 29	1:05	8:20	13:13	20:35								Th 29	0:35	7:56	12:58	19:40				
		2.4	0.4	2.4	0.1									2.6	0.3	2.2	0.4				
	Tu 30	1:52	9:06	13:58	21:17								F 30	1:18	8:35	13:40	19:51				
		2.4	0.4	2.2	0.2									2.6	0.4	2.1	0.5				
	W 31	2:40	9:50	14:45	21:55								S 31	2:04	9:15	14:28	20:24				
		2.4	0.5	2.1	0.3									2.6	0.4	2.1	0.5				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1 1/2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus ( - ) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 76th meridian W.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus ( - ) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

☉, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
P	S	1	0:08 0.4	5:02 2.1	11:12 0.2	17:45 2.8	P	W	1	1:45 0.8	6:30 2.0	18:17 0.8	19:15 2.8	S	1	3:10 0.2	8:08 2.1	15:27 0.8	20:34 2.5	
	M	2	1:08 0.8	5:58 2.1	12:01 0.2	18:41 2.9	S	Th	2	2:40 0.2	7:27 2.0	14:30 0.8	20:08 2.8	○	S	2	3:59 0.1	9:00 2.2	16:20 0.2	21:22 2.5
	Tu	3	2:05 0.2	6:58 2.0	13:07 0.2	19:36 3.0		F	3	3:34 0.1	8:24 2.1	15:35 0.2	21:00 2.8		M	3	4:46 0.1	9:50 2.3	17:11 0.2	22:09 2.5
S	W	4	3:08 0.1	7:50 2.1	14:33 0.2	20:30 3.0	○	S	4	4:25 0.0	9:20 2.2	16:35 0.2	21:48 2.7		Tu	4	5:32 0.1	10:40 2.4	18:00 0.2	22:54 2.4
	Th	5	3:55 0.0	8:44 2.1	15:43 0.2	21:22 3.0	S	5	5:14 0.0	10:15 2.3	17:30 0.2	22:37 2.7	E	W	5	6:17 0.1	11:27 2.5	18:46 0.2	23:39 2.4	
	○	F	4:48 0.0	9:40 2.2	16:48 0.2	22:10 2.9	M	6	6:00 -0.1	11:05 2.3	18:21 0.2	23:23 2.6		Th	6	7:00 0.1	12:11 2.5	19:30 0.8	24:30 ...	
○	S	7	5:38 -0.1	10:35 2.2	17:45 0.2	23:02 2.8		Tu	7	6:47 0.0	11:57 2.4	19:12 0.2	...		F	7	7:23 2.3	12:42 0.2	12:55 2.5	20:15 0.3
	S	8	6:27 -0.1	11:30 2.3	18:42 0.2	23:50 2.7	E	W	8	0:09 2.5	7:31 0.0	12:46 2.4	20:02 0.8		S	8	1:06 2.2	8:25 0.8	13:40 2.5	21:00 0.4
	M	9	7:16 -0.1	12:23 2.3	19:37 0.3	...	Th	9	0:54 2.4	8:17 0.0	13:33 2.5	20:50 0.4	A	S	9	1:55 2.1	9:00 0.8	14:24 2.5	21:45 0.4	
E	Tu	10	8:02 2.6	13:17 -0.1	20:30 2.3	...	F	10	1:40 2.3	9:00 0.1	14:20 2.4	21:36 0.4	○	M	10	2:39 2.0	9:29 0.4	15:10 2.5	22:30 0.5	
	W	11	1:25 2.6	8:50 0.0	14:10 2.3	21:22 0.4	○	S	11	2:25 2.1	9:43 0.2	15:06 2.4	22:25 0.5		Tu	11	3:29 2.0	9:50 0.5	15:59 2.5	23:19 0.5
	Th	12	2:12 2.3	9:35 0.1	15:00 2.3	22:12 0.4	S	12	3:14 2.0	10:24 0.8	15:52 2.4	23:15 0.5	N	W	12	4:20 1.9	10:22 0.5	16:48 2.5	...	
C	F	13	3:00 2.1	10:22 0.2	15:48 2.4	23:05 0.5	A	M	13	4:00 1.9	11:00 0.4	16:39 2.5	...		Th	13	5:08 0.5	5:13 1.9	11:08 0.6	17:41 2.5
	S	14	3:48 2.0	11:07 0.8	16:37 2.4	23:56 0.5	Tu	14	0:05 0.5	4:51 1.9	11:17 0.5	17:27 2.5		F	14	1:02 0.4	6:07 2.0	12:04 0.5	18:35 2.5	
	S	15	4:35 1.9	11:49 0.4	17:22 2.4	...	W	15	0:55 0.5	5:44 1.8	11:36 0.6	18:16 2.5		S	15	1:53 0.4	7:00 2.1	13:20 0.5	19:28 2.5	
A	M	16	0:47 0.5	5:25 1.8	12:30 0.4	18:08 2.5	N	Th	16	1:47 0.4	6:36 1.9	12:20 0.5	19:06 2.6		S	16	2:43 0.3	7:54 2.3	14:40 0.4	20:26 2.6
	Tu	17	1:39 0.5	6:15 1.8	12:55 0.5	18:51 2.5	F	17	2:39 0.4	7:27 2.0	13:12 0.5	19:57 2.6		M	17	3:30 0.3	8:45 2.5	15:48 0.3	21:12 2.6	
	W	18	2:27 0.4	7:05 1.8	13:05 0.6	19:38 2.6	S	18	3:27 0.3	8:20 2.1	14:23 0.5	20:45 2.7	●	Tu	18	4:19 0.2	9:36 2.6	16:43 0.2	22:02 2.6	
N	Th	19	3:15 0.8	7:54 1.9	13:30 0.6	20:25 2.7	●	S	19	4:13 0.3	9:10 2.2	15:45 0.4	21:37 2.7	E	W	19	5:02 0.1	10:27 2.8	17:40 0.1	22:51 2.6
	F	20	4:01 0.8	8:45 1.9	14:25 0.5	21:11 2.8		M	20	4:58 0.2	10:00 2.4	16:55 0.8	22:27 2.7		Th	20	5:49 0.1	11:17 2.9	18:31 0.0	23:40 2.5
	●	S	4:47 0.2	9:35 2.0	15:22 0.5	22:00 2.8	Tu	21	5:40 0.1	10:50 2.5	17:52 0.8	23:14 2.7	P	F	21	6:33 0.1	12:07 2.9	19:27 0.0	...	
●	S	22	5:30 0.2	10:23 2.2	16:31 0.6	22:47 2.8	W	22	6:22 0.1	11:40 2.6	18:50 0.2	...		S	22	7:28 2.4	1:01 0.1	12:59 2.9	20:18 0.1	
	M	23	6:12 0.1	11:14 2.3	17:48 0.4	23:35 2.7	E	Th	23	0:04 2.6	7:03 0.1	12:30 2.7	19:40 0.2		S	23	1:20 2.3	8:13 0.1	13:50 2.8	21:11 0.1
	Tu	24	6:58 0.1	12:04 2.4	18:52 0.4	...	F	24	0:50 2.5	7:47 0.1	13:22 2.8	20:35 0.2		M	24	2:10 2.2	9:08 0.1	14:45 2.7	22:05 0.2	
E	W	25	0:23 2.7	7:35 0.1	12:58 2.5	19:53 0.4	S	25	1:40 2.4	8:30 0.1	14:15 2.8	21:30 0.2	○	Tu	25	3:02 2.2	10:05 0.2	15:40 2.6	23:00 0.2	
	Th	26	1:12 2.6	8:10 0.1	13:45 2.6	20:47 0.4	○	S	26	2:30 2.3	9:17 0.1	15:08 2.8	22:25 0.3		W	26	4:00 2.1	11:10 0.8	16:36 2.5	23:58 0.3
	F	27	2:00 2.4	8:50 0.1	14:37 2.7	21:48 0.4	P	M	27	3:21 2.1	10:05 0.2	16:02 2.7	23:23 0.8		Th	27	4:58 2.1	12:15 0.8	17:34 2.4	...
D	S	28	2:50 2.3	9:38 0.1	15:30 2.7	22:44 0.4	Tu	28	4:16 2.1	11:09 0.8	17:00 2.7	...		F	28	5:55 0.8	5:59 2.1	13:18 0.8	18:27 2.3	
	S	29	3:42 2.2	10:10 0.2	16:28 2.7	23:45 0.3	S	W	29	0:21 0.8	5:13 2.0	12:15 0.8	17:58 2.6		S	29	1:50 0.8	6:55 2.2	14:17 0.8	19:20 2.3
	M	30	4:35 2.1	10:56 0.2	17:23 2.8	...	Th	30	1:20 0.8	6:11 2.0	13:26 0.8	18:58 2.6		S	30	2:41 0.2	7:50 2.2	15:11 0.8	20:09 2.3	
	Tu	31	0:45 0.8	5:32 2.0	12:00 0.8	18:20 2.8	F	31	2:16 0.2	7:10 2.1	14:28 0.3	19:45 2.6								

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●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.						NOVEMBER.						DECEMBER.									
MOON.	Day of— W. Mo.	Time and Height of High and Low Water.				MOON.	Day of— W. Mo.	Time and Height of High and Low Water.				MOON.	Day of— W. Mo.	Time and Height of High and Low Water.							
E	M 1	3:29 0.2	8:40 2.4	16:02 0.2	20:53 2.3	A	Th 1	4:27 0.4	9:39 2.6	17:10 0.2	21:53 2.1	N	S 1	4:30 0.5	9:49 2.7	17:28 0.2	22:09 2.0				
	Tu 2	4:16 0.2	9:26 2.5	16:51 0.2	21:39 2.3		N	F 2	5:08 0.4	10:20 2.7	17:58 0.2		22:39 2.1	M	S 2	5:03 0.6	10:30 2.7	18:10 0.2	22:55 2.0		
	W 3	5:00 0.2	10:10 2.5	17:36 0.2	22:24 2.4			A	S 3	5:47 0.4	11:00 2.7		18:34 0.2		23:24 2.1	Tu	M 3	5:20 0.6	11:15 2.8	18:50 0.2	23:41 2.0
	Th 4	5:44 0.3	10:53 2.6	18:20 0.2	23:08 2.2				N	S 4	6:18 0.5		11:43 2.7		19:15 0.2		23:55 2.1	W	Th 4	5:38 0.6	11:59 2.7
F 5	6:25 0.3	11:35 2.6	19:00 0.2	23:51 2.2	N	M 5				0:08 2.1	6:37 0.5	12:26 2.7	19:56 0.2		Th		W 5		0:28 2.1	6:20 0.6	12:45 2.7
S 6	7:08 0.3	12:19 2.6	19:48 0.3	24:39 2.2		C	Tu 6			0:55 2.1	6:52 0.6	13:11 2.6	20:35 0.3	F			Th 6		1:18 2.2	7:15 0.6	13:33 2.6
A S 7	0:38 2.1	7:38 0.4	13:00 2.6	20:26 0.3			C	W 7		1:43 2.1	7:36 0.6	13:59 2.6	21:15 0.8			C	F 7		2:08 2.3	8:12 0.6	14:22 2.5
M 8	1:22 2.1	8:08 0.5	13:45 2.6	21:08 0.3				C	Th 8	2:32 2.1	8:30 0.6	14:50 2.5	21:52 0.3				E	S 8	3:00 2.4	9:22 0.5	15:14 2.4
N Tu 9	2:09 2.1	8:29 0.5	14:31 2.5	21:50 0.4	E				F 9	3:26 2.2	9:28 0.6	15:42 2.4	22:29 0.3		M			S 9	3:52 2.5	10:23 0.5	16:05 2.3
C W 10	2:59 2.0	9:03 0.6	15:20 2.5	22:34 0.4		E			S 10	4:19 2.3	10:29 0.5	16:37 2.4	23:09 0.3	W				M 10	4:47 2.6	11:43 0.4	17:00 2.2
Th 11	3:51 2.0	9:49 0.6	16:13 2.4	23:22 0.4			E		S 11	5:13 2.4	11:50 0.5	17:33 2.3	23:53 0.3			Th		Tu 11	5:42 2.7	12:53 0.3	17:58 2.1
F 12	4:45 2.1	10:42 0.5	17:07 2.4	24:07 2.2				P	M 12	6:10 2.6	13:05 0.4	18:28 2.3	24:43 2.3				S	W 12	0:05 0.2	6:38 2.9	13:55 0.2
S 13	0:10 0.4	5:40 2.2	11:51 0.5	18:05 2.4	P				Tu 13	0:41 0.3	7:03 2.7	14:10 0.2	19:25 2.3		S			Th 13	0:51 0.2	7:31 3.0	14:53 0.1
S 14	0:59 0.4	6:34 2.4	13:21 0.4	19:00 2.4		P			W 14	1:37 0.2	7:57 2.9	15:11 0.1	20:17 2.3	S				F 14	1:57 0.2	8:25 3.1	15:50 0.0
M 15	1:47 0.3	7:28 2.5	14:29 0.3	19:55 2.4			P		Th 15	2:30 0.2	8:48 3.0	16:10 0.0	21:10 2.3			S		S 15	3:08 0.2	9:17 3.1	16:43 -0.1
E Tu 16	2:38 0.3	8:20 2.7	15:30 0.2	20:45 2.4				P	F 16	3:37 0.2	9:40 3.1	17:03 -0.1	22:00 2.3				S	S 16	4:21 0.2	10:09 3.1	17:35 -0.1
W 17	3:30 0.2	9:12 2.9	16:28 0.1	21:38 2.4	S				S 17	4:40 0.1	10:30 3.1	17:55 -0.1	22:52 2.3		M			M 17	5:30 0.2	11:01 3.0	18:25 -0.2
Th 18	4:15 0.2	10:02 3.0	17:22 0.0	22:27 2.4		S			S 18	5:46 0.1	11:23 3.1	18:47 -0.1	23:46 2.3	Tu				Tu 18	6:31 0.2	11:52 2.9	19:15 -0.2
P F 19	5:11 0.1	10:54 3.1	18:15 -0.1	23:16 2.4			S		19	6:43 0.2	12:12 3.0	19:38 -0.1	24:43 2.3			W		W 19	0:20 2.4	7:31 0.2	12:42 2.3
S 20	6:03 0.1	11:45 3.1	19:06 -0.1	24:06 2.4				D	Tu 20	0:39 2.3	7:45 0.2	13:05 2.9	20:30 -0.1				Th	Th 20	1:17 2.4	8:28 0.3	13:33 2.6
S 21	0:07 2.4	7:00 0.1	12:36 3.0	20:00 0.0	D				W 21	1:35 2.3	8:45 0.3	13:57 2.5	21:20 0.0		F			F 21	2:11 2.4	9:25 0.3	14:23 2.4
S M 22	0:59 2.3	7:57 0.2	13:29 2.9	20:50 0.0		D			Th 22	2:32 2.3	9:45 0.3	14:50 2.5	22:10 0.0	D				S 22	3:08 2.4	10:22 0.4	15:13 2.2
Tu 23	1:50 2.3	8:59 0.2	14:21 2.7	21:44 0.1			E		F 23	3:30 2.3	10:45 0.4	15:45 2.3	23:02 0.1			E		S 23	4:02 2.4	11:18 0.4	16:02 2.1
D W 24	2:48 2.2	10:00 0.3	15:15 2.6	22:38 0.1				E	S 24	4:28 2.3	11:47 0.4	16:35 2.1	23:55 0.2				M	M 24	4:52 2.4	12:12 0.4	16:52 2.0
Th 25	3:46 2.2	11:01 0.4	16:12 2.4	23:31 0.2	E				S 25	5:22 2.3	12:40 0.4	17:27 2.0	24:43 1.9		W			Tu 25	0:12 0.3	5:43 2.4	13:06 0.4
F 26	4:45 2.2	12:02 0.4	17:07 2.3	24:27 2.1		E			M 26	0:45 0.3	6:15 2.4	13:36 0.4	18:17 1.9	Th				W 26	1:00 0.4	6:29 2.5	13:58 0.4
S 27	0:25 0.3	5:43 2.2	13:04 0.4	17:59 2.2			E		Tu 27	1:35 0.3	7:00 2.4	14:28 0.3	19:05 1.9			A		Th 27	1:45 0.5	7:11 2.5	14:47 0.4
S 28	1:18 0.3	6:40 2.3	14:00 0.3	18:50 2.1				E	W 28	2:22 0.4	7:45 2.5	15:15 0.3	19:52 1.9				F	F 28	2:30 0.5	7:54 2.6	15:38 0.3
E M 29	2:09 0.3	7:28 2.4	14:52 0.3	19:37 2.1	O				Th 29	3:08 0.4	8:28 2.6	16:01 0.3	20:38 1.9		N			S 29	3:10 0.5	8:36 2.7	16:18 0.3
Tu 30	2:58 0.3	8:13 2.5	15:40 0.3	20:25 2.5		O			F 30	3:50 0.5	9:07 2.7	16:45 0.2	21:24 1.9	M				S 30	3:30 0.6	9:20 2.7	17:00 0.2
O W 31	3:43 0.3	8:58 2.5	16:28 0.2	21:10 2.1														M 31	3:50 0.6	10:02 2.7	17:44 0.2

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JANUARY.					FEBRUARY.					MARCH.							
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
E	M 1	0:28	6:32	12:42	19:01	A	Th 1	1:25	7:37	13:28	19:52	A	Th 1	6:04	11:53	18:16	...
		4.7	0.4	4.8	0.1			4.6	0.9	4.1	0.5			0.6	4.3	0.5	...
D	Tu 2	1:24	7:28	13:34	19:53	F	2	2:15	8:30	14:18	20:41	F	2	0:33	6:50	12:34	19:02
		4.6	0.7	4.5	0.0			4.5	1.1	3.8	0.6			4.7	0.8	4.1	0.6
A	W 3	2:18	8:25	14:27	20:42	S	3	3:07	9:25	15:12	21:31	D	S 3	1:20	7:42	13:23	19:52
		4.5	0.9	4.2	0.4			4.6	1.1	3.8	0.6			4.6	1.0	3.9	0.7
N	Th 4	3:12	9:21	15:20	21:30	S	4	3:58	10:19	16:06	22:23	N	S 4	2:14	8:38	14:17	20:45
		4.5	1.0	4.0	0.5			4.7	1.0	3.8	0.5			4.6	1.0	3.8	0.7
C	F 5	4:00	10:14	16:12	22:18	M	5	4:47	11:10	17:00	23:12	C	M 5	3:09	9:35	15:20	21:44
		4.6	1.0	4.0	0.4			4.9	0.7	4.0	0.3			4.7	0.9	3.9	0.6
O	S 6	4:45	11:02	16:59	23:08	N	Tu 6	5:35	11:57	17:50	...	O	Tu 6	4:05	10:30	16:23	22:40
		4.8	0.9	4.0	0.3			5.2	0.4	4.3	...			4.8	0.6	4.1	0.3
P	S 7	5:28	11:48	17:42	23:46	W	7	0:00	6:21	12:42	18:36	P	W 7	5:00	11:22	17:18	23:34
		5.0	0.7	4.1	0.2			0.0	5.5	0.1	4.6			5.1	0.2	4.5	0.0
E	M 8	6:10	12:30	18:23	...	Th	8	0:48	7:05	13:26	19:23	E	Th 8	5:50	12:10	18:10	...
		5.3	0.4	4.2	...			-0.2	5.8	-0.3	5.2			5.4	-0.1	4.9	...
C	N Tu 9	0:30	6:50	13:10	19:03	C	F 9	1:35	7:50	14:10	20:08	C	F 9	0:25	6:40	12:58	19:00
		0.1	5.5	0.2	4.4			-0.5	6.0	-0.5	5.3			-0.3	5.7	-0.4	5.4
P	W 10	1:10	7:30	13:52	19:43	S	10	2:20	8:35	14:53	20:53	P	S 10	1:14	7:26	13:43	19:46
		-0.1	5.7	-0.1	4.6			-0.6	6.1	-0.6	5.6			-0.7	5.9	-0.7	5.9
A	Th 11	1:54	8:12	14:35	20:24	S	11	3:07	9:19	15:38	21:42	A	S 11	2:03	8:12	14:28	20:35
		-0.2	5.9	-0.3	4.8			-0.7	6.0	-0.7	5.7			-1.0	6.3	-1.1	6.4
N	F 12	2:37	8:54	15:17	21:09	E	M 12	3:56	10:05	16:24	22:31	N	M 12	2:51	9:02	15:15	21:25
		-0.3	5.9	-0.4	5.0			-0.6	5.8	-0.6	5.7			-1.2	6.3	-1.2	6.2
C	S 13	3:28	9:37	16:01	21:55	P	Tu 13	4:47	10:52	17:12	23:23	C	Tu 13	3:40	9:48	16:00	22:14
		-0.3	5.8	-0.5	5.1			-0.4	5.6	-0.5	5.6			-1.1	6.1	-1.0	6.2
O	S 14	4:10	10:23	16:48	22:47	W	14	5:40	11:43	18:03	...	O	W 14	4:31	10:35	16:50	23:06
		-0.2	5.7	-0.4	5.1			-0.2	5.2	-0.3	...			-0.9	5.6	-0.7	6.0
P	M 15	5:02	11:10	17:29	23:40	Th	15	0:20	6:40	12:37	19:00	P	Th 15	5:26	11:26	17:43	...
		-0.1	5.5	-0.3	5.2			5.5	0.1	4.8	-0.1			0.4	5.2	-0.5	...
A	E Tu 16	5:56	12:01	18:26	...	F	16	1:20	7:43	13:38	20:00	A	F 16	0:03	6:24	12:25	18:40
		0.1	5.2	-0.2	...			5.3	0.3	4.5	0.0			5.8	-0.2	4.8	-0.2
C	W 17	0:37	6:56	12:55	19:20	S	17	2:27	8:51	14:50	21:05	C	S 17	1:06	7:26	13:28	19:42
		5.1	0.2	4.9	-0.1			5.3	0.5	4.3	0.0			5.5	0.2	4.5	0.0
P	Th 18	1:40	8:00	13:56	20:20	S	18	3:34	10:00	16:00	22:07	P	S 18	2:09	8:34	14:40	20:48
		5.1	0.3	4.6	0.0			5.3	0.5	4.3	-0.1			5.3	0.4	4.3	0.1
A	F 19	2:55	9:08	15:03	21:22	M	19	4:38	11:02	17:09	23:10	A	M 19	3:16	9:40	15:52	21:54
		5.2	0.4	4.4	-0.1			5.4	0.4	4.5	-0.2			5.2	0.4	4.4	0.1
N	S 20	3:50	10:14	16:12	22:23	Tu	20	5:37	11:57	18:08	...	N	Tu 20	4:22	10:42	16:58	22:55
		5.4	0.4	4.4	-0.2			5.6	0.2	4.7	...			5.2	0.4	4.6	0.0
C	S 21	4:52	11:16	17:18	23:21	W	21	0:05	6:30	12:48	19:00	C	W 21	5:22	11:37	17:53	23:50
		5.6	0.2	4.6	-0.4			-0.3	5.7	-0.1	5.0			5.3	0.2	4.8	-0.1
P	M 22	5:50	12:12	18:18	...	Th	22	0:56	7:20	13:34	19:45	P	Th 22	6:15	12:25	18:42	...
		5.9	0.0	4.8	...			-0.5	5.8	-0.3	5.2			5.4	0.0	5.0	...
A	Tu 23	0:17	6:43	13:02	19:06	F	23	1:45	8:08	14:15	20:29	A	F 23	0:42	7:00	13:09	19:25
		-0.6	6.1	-0.5	5.4			-0.5	5.8	-0.4	5.3			-0.2	5.4	-0.2	5.2
N	W 24	1:09	7:34	13:52	20:00	S	24	2:30	8:45	14:56	21:08	N	S 24	1:28	7:43	13:50	20:04
		-0.9	6.1	-0.5	5.2			-0.6	5.7	-0.5	5.4			-0.2	5.4	-0.3	5.3
C	Th 25	2:00	8:21	14:38	20:46	S	25	3:12	9:25	15:36	21:48	C	S 25	2:10	8:22	14:28	20:41
		-0.7	6.1	-0.6	5.3			-0.3	5.5	-0.4	5.3			-0.2	5.3	-0.3	5.4
P	F 26	2:47	9:06	15:23	21:34	M	26	3:55	10:04	16:15	22:28	P	M 26	2:50	8:58	15:04	21:17
		-0.8	6.1	-0.6	5.3			-0.1	5.2	-0.2	5.1			-0.2	5.1	-0.2	5.3
A	S 27	3:35	9:51	16:18	22:18	Tu	27	4:35	10:40	16:55	23:07	A	Tu 27	3:28	9:31	15:40	21:53
		-0.5	5.8	-0.5	5.2			0.1	4.9	0.0	5.0			0.0	4.9	0.1	5.3
N	S 28	4:22	10:35	16:50	23:03	W	28	5:20	11:16	17:35	23:48	N	W 28	4:05	10:04	16:15	22:28
		-0.2	5.5	-0.3	5.0			0.4	4.6	0.2	4.8			0.1	4.7	0.1	5.1
C	E M 29	5:08	11:17	17:35	23:49	Th	29	6:11	11:50	18:17	...	C	Th 29	4:45	10:35	16:53	23:06
		0.1	5.1	-0.1	4.8			0.6	4.2	0.7	...			0.3	4.5	0.3	5.0
P	Tu 30	5:55	12:05	18:19	...	F	30	5:27	11:10	17:32	23:48	P	F 30	5:27	11:10	17:32	23:48
		0.4	4.7	0.2	...			0.5	4.3	0.5	4.9			0.5	4.3	0.5	4.9
A	W 31	0:35	6:45	12:43	19:05	S	31	6:11	11:50	18:17	...	A	S 31	6:11	11:50	18:17	...
		4.7	0.7	4.4	0.4			0.6	4.2	0.7	...			0.6	4.2	0.7	...

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

				MAY.				JUNE.				
				ad Height of High and Low Water.				Time and Height of High and Low Water.				
N	D	Day of	Moon.	W.	M.	Day of	Moon.	W.	M.	Day of	Moon.	
S	1	0:35	7:02	12:40	19:08	D	Tu	1	0:30	7:28	13:08	19:32
		4.8	0.3	4.0	0.7					F	I	
M	2	1:27	7:56	13:37	20:06	W	2	1:46	8:13	14:13	20:35	
		4.7	0.3	4.0	0.7			4.8	0.6	4.4	0.5	
Tu	3	2:25	8:55	14:44	21:06	Th	3	2:44	9:15	15:19	21:38	
		4.7	0.7	4.1	0.6			4.9	0.3	4.7	0.3	
W	4	3:25	9:52	15:48	22:06	F	4	3:47	10:11	16:20	22:38	
		4.9	0.5	4.4	0.3			5.0	0.0	5.1	0.0	
Th	5	4:24	10:46	16:47	23:06	E	S	5	4:45	11:05	17:17	23:35
		5.1	0.2	4.8	-0.1			5.2	-0.3	5.5	-0.3	
F	6	5:20	11:38	17:41	23:59	S	6	5:39	11:58	18:10	24:00	
		5.4	-0.2	5.2	-0.4			5.4	-0.6	5.9	...	
S	7	6:10	12:26	18:31	...	M	7	6:29	12:46	19:01	...	
		5.5	-0.4	5.6	...			0.27	6.32	-0.9	6.3	
E	S	0:51	7:00	13:15	19:25	Q	Tu	8	1:22	7:26	13:38	19:53
		-0.8	6.0	-1.0	6.2			-0.9	5.6	1.1	6.5	
O	M	1:42	7:50	14:04	20:17	W	9	2:14	8:16	14:37	20:45	
		-1.2	6.3	-1.5	6.6			-1.0	5.6	1.1	6.6	
P	Tu	2:35	8:38	14:52	21:00	Th	10	3:06	9:06	15:17	21:37	
		-1.3	6.3	-1.4	6.6			-0.9	5.5	1.0	6.5	
W	11	3:28	9:27	15:40	22:00	S	F	11	4:00	10:00	16:10	22:31
		-1.3	6.1	-1.2	6.6			-0.8	5.3	-0.8	6.3	
Th	12	4:15	10:17	16:29	22:48	S	12	4:54	10:56	17:04	23:26	
		-1.1	5.7	-0.9	6.2			-0.7	5.1	-0.6	6.0	
F	13	5:09	11:10	17:23	23:45	S	13	5:50	11:55	18:02	...	
		-0.6	5.2	-0.6	5.9			-0.8	4.9	-0.2	...	
S	14	6:07	12:10	18:20	...	M	14	6:25	12:48	19:06	...	
		-0.2	4.8	-0.2	...			5.6	-0.1	4.7	0.1	
C	S	0:45	7:08	13:15	19:25	C	Tu	15	1:28	7:48	14:07	20:08
		5.8	0.1	4.6	0.0			5.3	0.1	4.6	0.3	
M	16	1:50	8:12	14:26	20:12	W	16	2:30	8:47	15:10	21:12	
		5.3	0.3	4.5	0.2			5.0	0.2	4.7	0.4	
Tu	17	2:56	9:17	15:35	21:35	Th	17	3:30	9:43	16:10	22:12	
		5.1	0.4	4.6	0.3			4.8	0.2	4.8	0.5	
W	18	4:00	10:15	16:37	22:35	E	F	18	4:30	10:40	17:00	23:07
		5.0	0.3	4.6	0.2			4.7	0.2	4.9	0.4	
Th	19	4:58	11:08	17:30	23:32	S	19	5:28	11:20	17:48	23:55	
		5.0	0.2	4.9	0.2			4.7	0.1	5.0	0.4	
F	20	5:50	11:56	18:16	...	S	20	6:07	12:06	18:30	...	
		5.0	0.1	5.1	...			4.6	0.0	5.2	...	
E	S	0:20	6:37	12:38	18:58	M	21	0:40	6:50	12:45	19:06	
		0.1	5.0	-0.1	5.2			0.4	4.6	0.0	5.3	
S	22	1:05	7:18	13:18	19:35	A	Tu	1:20	7:25	13:20	19:53	
		0.0	5.0	-0.1	5.3			0.3	4.5	0.0	5.4	
●	M	1:45	7:55	13:55	20:12	●	W	1:56	7:56	13:58	20:15	
		0.0	4.9	-0.1	5.4			0.3	4.4	0.0	5.4	
Tu	24	2:23	8:22	14:30	20:45	Th	24	2:32	8:27	14:31	20:49	
		0.1	4.8	-0.1	5.4			0.2	4.4	0.1	5.4	
A	W	3:00	8:58	15:06	21:19	F	25	3:33	8:58	15:10	21:25	
		0.1	4.6	0.0	5.3			0.2	4.4	0.2	5.4	
Th	26	3:37	9:28	15:40	21:54	N	S	26	3:50	9:31	15:48	22:04
		0.2	4.5	0.2	5.2			0.2	4.4	0.3	5.4	
F	27	4:15	10:00	16:17	22:31	S	27	4:30	10:12	16:17	22:40	
		0.3	4.4	0.3	5.2			0.2	4.4	0.4	5.3	
S	28	4:56	10:36	16:57	23:12	M	28	5:15	10:40	17:15	23:31	
		0.4	4.3	0.5	5.1			0.2	4.4	0.5	5.2	
N	S	5:41	11:18	17:42	...	Tu	29	6:03	11:50	18:08	...	
		0.5	4.3	0.6	...			0.2	4.4	0.5	...	
M	30	0:03	6:30	12:09	18:35	W	30	0:20	6:53	12:47	19:06	
		5.0	0.5	4.2	0.7			5.0	0.3	4.5	0.5	
						D	Th	1:15	7:47	13:49	20:08	
								4.9	0.2	4.7	0.4	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
P S O	S	1	2:50 4.7	9:15 -0.2	15:35 5.5	21:56 0.1	P	W	1	4:43 4.6	10:51 -0.4	17:20 5.9	23:40 0.0	S	1	0:20 -0.1	6:28 5.0	12:29 -0.5	18:51 5.8	
	M	2	3:52 4.7	10:13 -0.4	16:35 5.8	22:57 0.0	S	Th	2	5:44 4.8	11:46 -0.6	18:15 6.1		S	2	1:06 -0.3	7:17 5.2	13:19 -0.6	19:38 5.8	
	Tu	3	4:55 4.8	11:06 -0.6	17:34 6.1	23:55 -0.2		F	3	0:35 -0.2	6:40 5.0	12:42 -0.8	19:06 6.2	M	3	1:50 -0.4	8:02 5.3	14:05 -0.6	20:22 5.7	
	W	4	5:55 4.9	12:08 -0.8	18:28 6.3		O	S	4	1:25 -0.4	7:32 5.1	13:35 -0.8	19:56 6.2	Tu	4	2:33 -0.5	8:45 5.4	14:50 -0.5	21:04 5.6	
	Th	5	0:50 -0.4	6:52 5.1	12:56 -0.9	19:20 6.4		S	5	2:14 -0.5	8:22 5.2	14:24 -0.7	20:44 6.1	E	W	5	3:14 -0.4	9:27 5.4	15:35 -0.2	21:45 5.3
S O	F	6	1:42 -0.6	7:46 5.2	13:49 -0.9	20:12 6.4		M	6	3:00 -0.5	9:10 5.3	15:13 -0.6	21:30 5.9	Th	6	3:55 -0.2	10:10 5.2	16:19 0.1	22:25 4.9	
	S	7	2:34 -0.6	8:48 5.2	14:40 -0.9	21:08 6.3		Tu	7	3:45 -0.5	9:56 5.2	16:00 -0.3	22:15 6.5	F	7	4:36 0.0	10:52 5.1	17:08 0.3	23:08 4.6	
	S	8	3:23 -0.6	9:32 5.2	15:33 -0.7	21:53 6.1	E	W	8	4:30 -0.3	10:45 5.1	16:49 0.0	23:00 5.2	S	8	5:19 0.2	11:35 4.9	17:49 0.6	23:43 4.3	
	M	9	4:14 -0.5	10:24 5.1	16:25 -0.5	22:44 5.7		Th	9	5:15 -0.1	11:32 4.9	17:39 0.3	23:46 4.8	A	S	9	6:03 0.5	12:20 4.7	18:38 0.8	
	Tu	10	5:03 -0.4	11:16 5.0	17:19 -0.1	23:34 5.3		F	10	6:02 0.1	12:21 4.8	18:30 0.6		C	M	10	6:26 4.0	6:50 0.6	13:18 4.6	19:28 1.0
E C	W	11	5:52 -0.2	12:10 4.8	18:14 0.3		C	S	11	6:32 4.4	6:49 0.3	13:10 4.6	19:21 0.9	Tu	11	1:15 3.9	7:40 0.7	14:00 4.6	20:23 1.0	
	Th	12	0:25 5.0	6:42 0.0	13:05 4.7	19:10 0.6		S	12	1:20 4.1	7:36 0.5	14:03 4.6	20:16 1.0	N	W	12	2:10 3.8	8:33 0.7	14:55 4.6	21:18 0.9
	F	13	1:18 4.6	7:32 0.2	14:00 4.6	20:06 0.8	A	M	13	2:10 3.9	8:26 0.6	14:55 4.6	21:10 1.1	Th	13	3:10 3.9	9:28 0.6	15:48 4.8	22:11 0.6	
	S	14	2:11 4.3	8:23 0.3	14:58 4.6	21:03 0.9		Tu	14	3:05 3.8	9:18 0.6	15:44 4.7	22:01 1.0	F	14	4:07 4.1	10:21 0.4	16:40 5.0	23:00 0.3	
	S	15	3:05 4.1	9:12 0.4	15:44 4.7	21:56 1.0	N	W	15	3:56 3.8	10:06 0.5	16:32 4.9	22:50 0.8	S	15	5:00 4.5	11:12 0.0	17:29 5.3	23:48 0.0	
A N	M	16	3:55 4.0	10:00 0.4	16:30 4.8	22:45 0.9		Th	16	4:45 4.0	10:55 0.3	17:18 5.1	23:37 0.5	S	16	5:49 4.9	12:02 -0.3	18:16 5.6		
	Tu	17	4:44 4.0	10:45 0.3	17:12 5.0	23:29 0.8		F	17	5:32 4.3	11:40 0.1	18:02 5.4		M	17	0:33 -0.4	6:35 5.3	12:50 -0.6	19:02 5.9	
	W	18	5:27 4.1	11:29 0.2	17:53 5.2		S	18	0:20 0.2	6:17 4.6	12:27 -0.2	18:45 5.7	●	Tu	18	1:17 -0.6	7:22 5.5	13:37 -0.8	19:46 5.9	
	Th	19	0:12 0.5	6:07 4.2	12:12 0.1	18:34 5.4	●	S	19	1:04 -0.1	7:00 4.9	13:12 -0.4	19:28 5.8	E	W	19	2:01 -0.8	8:07 5.9	14:25 -0.9	20:31 5.9
	F	20	0:52 0.3	6:46 4.4	12:53 -0.1	19:12 5.6		M	20	1:46 -0.4	7:44 5.2	13:48 -0.5	20:10 5.9	Th	20	2:47 -0.8	8:55 6.0	15:13 -0.8	21:17 5.7	
●	S	21	1:32 0.0	7:25 4.6	13:35 -0.2	19:53 5.8		Tu	21	2:28 -0.6	8:28 5.4	14:44 -0.6	20:56 5.9	P	F	21	3:33 -0.8	9:45 6.0	16:05 -0.7	22:05 5.5
	S	22	2:14 -0.1	8:05 4.8	14:17 -0.2	20:34 5.8		W	22	3:13 -0.6	9:16 5.5	15:32 -0.5	21:40 5.8	S	22	4:21 -0.6	10:36 5.9	16:58 -0.4	22:56 5.1	
	M	23	2:56 -0.3	8:48 4.9	15:01 -0.2	21:16 5.8	E	Th	23	3:58 -0.6	10:04 5.6	16:20 -0.4	22:26 5.5	S	23	5:14 -0.4	11:33 5.7	17:56 -0.1	23:53 4.8	
	Tu	24	3:39 -0.4	9:34 5.0	15:49 -0.2	22:00 5.6		F	24	4:45 -0.5	10:55 5.6	17:14 -0.2	23:15 5.2	M	24	6:10 -0.1	12:33 5.5	18:57 0.2		
	W	25	4:24 -0.4	10:24 5.1	16:38 -0.1	22:47 5.4		S	25	5:36 -0.3	11:50 5.5	18:11 0.0		S	Tu	25	0:57 4.5	7:13 0.0	13:38 5.3	20:08 0.4
E D	Th	26	5:12 -0.3	11:15 5.1	17:30 0.1	23:36 5.2	D	S	26	0:08 4.9	6:31 -0.1	12:50 5.4	19:12 0.3	W	26	2:08 4.3	8:18 0.1	14:46 5.2	21:10 0.4	
	F	27	6:00 -0.2	12:10 5.2	18:28 0.2		P	M	27	1:08 4.6	7:30 0.0	13:55 5.3	20:19 0.4	Th	27	3:22 4.4	9:25 0.1	15:52 5.2	22:13 0.3	
	S	28	0:28 4.9	6:55 -0.1	13:10 5.2	19:30 0.3		Tu	28	2:15 4.4	8:34 0.0	15:02 5.3	21:26 0.4	F	28	4:28 4.6	10:27 0.0	16:52 5.3	23:09 0.1	
	S	29	1:25 4.7	7:53 -0.1	14:12 5.3	20:34 0.4	S	W	29	3:28 4.4	9:38 -0.1	16:06 5.4	22:30 0.3	S	29	5:25 4.9	11:24 -0.1	17:46 5.4	23:58 -0.1	
	M	30	2:28 4.5	8:53 -0.1	15:17 5.4	21:40 0.3		Th	30	4:35 4.5	10:33 -0.2	17:07 5.6	23:26 0.1	S	30	6:14 5.1	12:15 -0.2	18:35 5.4		
	Tu	31	3:36 4.5	9:53 -0.3	16:20 5.6	22:42 0.2		F	31	5:35 4.8	11:36 -0.4	18:00 5.7								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.				NOVEMBER.				DECEMBER.			
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
P	M 1	0:43 -0.3	6:58 5.3	13:04 -0.4	19:16 5.5	A	Th 1	1:37 -0.3	7:52 5.6	14:08 -0.1	20:10 4.8
	Tu 2	1:26 -0.4	7:32 5.5	13:48 -0.4	19:58 5.4		F 2	2:15 -0.2	8:28 5.5	14:47 0.0	20:42 4.6
	W 3	2:06 -0.5	8:18 5.5	14:30 -0.3	20:37 5.2		S 3	2:50 0.0	9:02 5.4	15:24 0.1	21:14 4.5
	Th 4	2:45 -0.3	8:56 5.5	15:12 -0.2	21:13 5.0		S 4	3:26 0.2	9:38 5.3	16:05 0.3	21:47 4.3
	F 5	3:23 -0.2	9:35 5.4	15:58 0.1	21:49 4.7		M 5	4:02 0.4	10:14 5.1	16:44 0.4	22:20 4.2
A	S 6	4:00 0.1	10:12 5.2	16:33 0.3	22:23 4.4	N	Tu 6	4:40 0.7	10:53 5.0	17:27 0.5	23:02 4.1
	S 7	4:40 0.4	10:52 5.0	17:17 0.5	23:00 4.2		W 7	5:25 0.8	11:36 4.9	18:14 0.6	23:52 4.1
	M 8	5:20 0.6	11:33 4.8	18:03 0.7	23:40 4.0		Th 8	6:15 0.9	12:26 4.8	19:05 0.6	24:42 4.0
	Tu 9	6:05 0.8	12:18 4.7	18:53 0.8	24:20 4.0		F 9	0:50 4.1	7:12 0.9	13:22 4.7	20:00 0.6
	W 10	0:29 3.9	6:56 0.9	13:10 4.6	19:47 0.9		S 10	1:53 4.2	8:14 0.8	14:20 4.7	20:54 0.4
N	Th 11	1:27 3.9	7:52 0.9	14:05 4.6	20:43 0.7	S	S 11	2:56 4.5	9:17 0.5	15:20 4.8	21:49 0.1
	F 12	2:30 4.0	8:52 0.8	15:04 4.7	21:36 0.5		M 12	3:57 5.0	10:17 0.2	16:18 5.0	22:42 -0.2
	S 13	3:32 4.3	9:50 0.5	16:00 4.9	22:28 0.3		Tu 13	4:52 5.4	11:12 -0.2	17:13 5.3	23:30 -0.5
	S 14	4:28 4.7	10:45 0.1	16:54 5.2	23:17 -0.1		W 14	5:43 5.9	12:06 -0.6	18:04 5.4	24:22 -0.5
	M 15	5:20 5.2	11:38 -0.2	17:44 5.5	24:03 ...		Th 15	0:20 -0.8	6:34 6.2	12:58 -0.8	18:55 5.5
E	Tu 16	0:03 -0.4	6:08 5.6	12:28 -0.6	18:32 5.7	P	F 16	1:10 -1.0	7:24 6.5	13:48 -0.9	19:45 5.5
	W 17	0:48 -0.7	6:55 6.0	13:16 -0.8	19:19 5.8		S 17	1:58 -1.0	8:14 6.6	14:39 -0.9	20:35 5.5
	Th 18	1:34 -0.9	7:43 6.2	14:05 -1.0	20:05 5.7		S 18	2:50 -1.0	9:07 6.6	15:32 -0.8	21:27 5.3
	F 19	2:20 -0.9	8:32 6.4	14:55 -1.0	20:53 5.6		M 19	3:40 -0.8	10:00 6.4	16:25 -0.7	22:23 5.1
	S 20	3:08 -0.8	9:22 6.3	15:47 -0.8	21:44 5.4		Tu 20	4:35 -0.5	10:55 6.1	17:21 -0.4	23:24 4.9
S	S 21	3:58 -0.7	10:15 6.2	16:42 -0.5	22:38 5.1	D	W 21	5:35 -0.3	11:53 5.7	18:21 -0.2	24:16 4.7
	M 22	4:52 -0.4	11:12 5.9	17:40 -0.2	23:37 4.8		Th 22	0:29 4.7	6:38 0.0	12:55 5.4	19:22 0.0
	Tu 23	5:50 -0.1	12:12 5.6	18:40 0.0	24:30 ...		F 23	1:36 4.7	7:43 0.2	14:00 5.1	20:22 0.1
	W 24	0:43 4.6	6:55 0.1	13:15 5.3	19:46 0.2		S 24	2:44 4.7	8:49 0.3	15:04 4.9	21:20 0.9
	Th 25	1:54 4.5	8:04 0.2	14:25 5.2	20:50 0.2		S 25	3:45 4.8	9:51 0.4	16:04 4.8	22:13 -0.1
A	F 26	3:05 4.6	9:10 0.2	15:30 5.1	21:50 0.1	E	M 26	4:40 5.0	10:49 0.3	17:00 4.8	23:02 -0.1
	S 27	4:08 4.8	10:12 0.2	16:30 5.1	22:44 0.0		Tu 27	5:27 5.2	11:39 0.3	17:48 4.7	23:47 -0.1
	S 28	5:04 5.0	11:10 0.1	17:24 5.1	23:32 -0.1		W 28	6:10 5.3	12:25 0.2	18:32 4.7	24:30 ...
	M 29	5:50 5.2	12:00 0.0	18:14 5.1	24:16 ...		Th 29	0:28 -0.2	6:48 5.5	13:06 0.2	19:10 4.6
	Tu 30	0:17 -0.3	6:35 5.4	12:45 -0.1	18:55 5.1		F 30	1:08 -0.1	7:25 5.5	13:45 0.2	19:42 4.5
O	W 31	0:57 -0.5	7:36 5.5	13:27 -0.1	19:34 5.0	N					
A	S 1	1:44 -0.1	8:00 5.5	14:22 0.2	20:14 4.4	N	S 2	2:20 0.1	8:34 5.5	15:00 0.2	20:45 4.3
	S 2	2:54 0.2	9:09 5.4	15:36 0.2	21:16 4.3		M 3	3:30 0.4	9:45 5.3	16:15 0.3	21:52 4.3
	W 5	4:10 0.6	10:23 5.2	16:58 0.3	22:35 4.3		Th 6	4:54 0.7	11:05 5.1	17:40 0.3	23:24 4.4
	Th 6	5:42 0.8	11:51 4.9	18:30 0.4	24:06 ...		F 7	6:42 0.8	12:40 4.9	19:12 0.4	24:42 ...
	S 8	0:20 4.4	6:38 0.7	12:44 4.8	19:21 0.4		S 9	1:20 4.6	7:40 0.7	13:40 4.8	20:16 0.2
E	S 9	1:20 4.6	7:40 0.7	13:40 4.8	20:16 0.2	P	M 10	2:24 4.8	8:45 0.5	14:42 4.8	21:12 0.0
	Tu 11	3:25 5.1	9:50 0.2	15:44 4.8	22:06 -0.2		W 12	4:24 5.6	10:50 -0.1	16:43 5.0	23:02 -0.5
	W 12	5:24 6.0	12:40 -0.4	18:34 5.1	24:06 -0.7		Th 13	6:15 6.0	13:40 -0.4	19:21 5.1	24:42 -0.7
	F 14	7:15 6.3	15:30 -0.6	21:16 5.2	26:32 ...		S 15	8:07 -0.9	16:24 6.6	22:02 -0.8	27:18 5.3
	S 16	9:07 -1.1	17:16 6.6	22:52 -0.9	28:50 5.4		S 16	1:40 -1.1	7:56 6.6	14:24 -0.9	20:20 5.4
M	M 17	2:31 -1.0	8:48 6.6	15:15 -0.8	21:15 5.3	S	Tu 18	3:25 -0.9	9:42 6.4	16:06 -0.7	22:06 5.2
	W 19	4:18 -0.6	10:36 6.1	17:01 -0.6	23:06 5.1		W 19	5:15 -0.3	11:32 5.8	17:56 -0.4	24:06 ...
	Th 20	6:15 -0.3	13:22 5.8	19:22 -0.4	26:06 ...		Th 20	7:15 -0.3	14:24 5.8	20:20 -0.4	27:06 ...
	F 21	8:07 5.0	16:16 0.0	22:02 5.3	28:50 -0.2		F 21	9:07 5.0	17:16 0.0	22:52 5.3	30:42 ...
	S 22	1:10 4.8	7:18 0.3	13:30 5.0	19:50 0.0		S 22	2:12 4.8	8:20 0.5	14:30 4.7	20:45 0.1
E	S 23	3:12 4.8	9:22 0.6	15:30 4.5	21:38 0.1	D	M 24	4:06 4.9	10:21 0.6	16:26 4.4	22:28 0.1
	Tu 25	5:06 4.6	11:14 0.6	17:18 4.4	23:14 0.1		W 26	6:06 5.0	13:14 0.6	19:18 4.4	25:14 0.1
	Th 27	8:06 5.2	16:14 0.6	22:18 4.3	28:14 0.0		Th 27	9:06 5.2	17:14 0.6	23:18 4.3	30:14 ...
	F 28	10:06 5.3	19:14 0.5	25:18 4.3	32:18 ...		F 28	11:06 5.3	20:14 0.5	26:18 4.3	33:18 ...
	S 29	12:06 0.0	22:14 5.4	28:22 0.4	35:22 4.3		S 29	13:06 0.0	23:14 5.4	30:22 0.4	38:22 ...
N	S 30	1:15 0.0	7:34 5.5	13:56 0.3	19:47 4.3	N	M 31	1:52 0.1	8:07 5.5	14:31 0.2	20:19 4.4

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Eastern Standard, 75th meridian, W; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon: for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.							
D	M	1	5:32	11:33	17:56	0.8	6.2	0.6		A	Th	1	0:07	6:30	12:22	18:43	5.8	1.4	5.8
	Tu	2	0:07	6:28	12:25	5.9	1.2	5.7	0.7		F	2	0:58	7:25	13:14	19:35	5.7	1.6	5.0
	W	3	0:50	7:22	13:18	5.7	1.4	5.4	0.8		S	3	1:48	8:18	14:08	20:25	5.7	1.5	5.0
A	Th	4	1:50	8:17	14:10	5.7	1.4	5.2	0.9	N	S	4	2:38	9:11	15:02	21:17	5.9	1.4	5.1
	F	5	2:39	9:09	15:00	5.8	1.4	5.1	0.9		M	5	3:30	10:02	15:55	22:08	6.1	1.1	5.3
	S	6	3:25	9:57	15:47	6.0	1.2	5.2	0.8		Tu	6	4:20	10:50	16:45	22:56	6.5	0.7	5.6
N	S	7	4:10	10:40	16:32	6.3	1.0	5.3	0.6	W	W	7	5:08	11:35	17:31		6.9	0.3	6.0
	M	8	4:51	11:22	17:14	6.6	0.7	5.6	0.4		Th	8	5:54	12:20	18:16		7.2	-0.1	6.4
	Tu	9	5:34	12:01	17:55	6.9	0.4	5.8			O	F	9	0:27	6:39	13:04	19:01	-0.2	7.4
O	W	10	0:05	6:16	12:44	0.3	7.1	0.1	6.0	S		10	1:18	7:25	13:48	19:48	-0.3	7.5	-0.5
	Th	11	0:46	7:00	13:26	0.2	7.8	-0.1	6.2	S		11	2:00	8:12	14:32	20:35	-0.4	7.5	-0.6
E	F	12	1:30	7:42	14:10	0.1	7.4	-0.2	6.4	P	M	12	2:48	8:59	15:18	21:23	-0.4	7.3	-0.5
	S	13	2:14	8:29	14:56	0.1	7.3	-0.3	6.5		Tu	13	3:40		16:05	22:14	-0.2	7.0	-0.3
	S	14	3:01	9:15	15:40	0.1	7.1	-0.2	6.8	C	W	14	4:35	10:40	16:56	23:09	0.0	6.7	0.0
M	15	3:53	10:05	16:29	0.3	6.8	0.0	6.6	Th		15	5:32	11:36	17:52		0.3	6.2	0.2	
Tu	16	4:50	10:56	17:20	0.4	6.5	0.1	6.6	F		16	0:08	6:38	18:41	18:55	0.6	5.9	0.3	
C	W	17	5:51	11:57	18:17	0.5	6.2	0.2		S	S	17	1:13	7:46	19:45	20:00	1.13	7.46	19.45
	Th	18	0:30	6:56	12:59	6.6	0.6	6.0	0.3		S	18	2:20	8:55	20:51	21:04	6.7	0.7	6.7
	F	19	1:38	8:08	14:03	6.7	0.6	5.8	0.2	M	M	19	3:22	9:58	21:57	22:05	6.8	0.5	5.9
P	S	20	2:36	9:10	15:07	6.9	0.5	5.9	0.0		Tu	20	4:22	10:58	22:57	23:02	7.0	0.2	6.1
	S	21	3:37	10:11	16:10	7.1	0.3	6.0	-0.2		W	21	5:15	11:44	23:46	23:55	6.15	11.44	23.46
S	M	22	4:35	11:08	17:06	7.4	0.0	6.2	-0.5	Th	Th	22	6:06	12:29	24:32		7.8	-0.3	6.7
	Tu	23	5:29	12:00	17:58	7.6	-0.3	6.4			F	23	0:42	6:50	13:10	19:15	0.42	6.50	13.10
	W	24	0:05	6:20	12:47	-0.6	7.7	-0.4	6.6		S	24	1:27	7:38	13:50	19:56	-0.4	7.2	-0.4
E	Th	25	0:55	7:07	13:32	-0.6	7.7	-0.5	6.7	E	S	25	2:10	8:13	14:30	20:38	-0.2	7.0	-0.2
	F	26	1:44	7:52	14:17	-0.5	7.5	-0.5	6.7		M	26	2:50	8:52	15:07	21:14	0.1	6.7	0.0
	S	27	2:31	8:38	15:00	-0.3	7.2	-0.4	6.6		Tu	27	3:30	9:30	15:40	21:58	0.4	6.3	0.3
E	S	28	3:18	9:22	15:43	0.1	6.9	-0.1	6.4	W	W	28	4:10	10:09	16:25	22:33	0.8	6.0	0.7
	M	29	4:05	10:08	16:26	0.5	6.4	0.2	6.1										
	Tu	30	4:51	10:52	17:10	0.9	6.0	0.6	5.9										
W	W	31	5:40	11:35	17:56	1.2	5.6	0.8		A	Th	29	5:00	10:50	17:03	22:16	1.1	5.4	1.3
											F	30	4:12	10:06	16:18	22:30	0.9	5.6	1.1
											S	31	4:56	10:50	17:03	23:16	1.1	6.4	1.3

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 3.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Central Standard, 90th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3.47 p. m.

☾, new moon; ☽, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

		JUNE.																Time and Height of High and Low Water.			
		Time	Height	Time	Height	Time	Height	Time	Height	Time	Height	Time	Height	Time	Height	Time	Height	Time	Height	Time	Height
	Th 5	3:16	9:45	15:49	22:05													1:12	7:40	13:51	20:12
	F 6	6.3	0.5	6.1	0.3													6.0	0.5	6.3	0.7
	S 7	4:14	10:28	16:41	22:56													2:18	8:38	14:46	21:14
	Th 8	6.7	0.1	6.7	-0.2													6.1	0.3	6.7	0.3
	M 9	5:08	11:25	17:30	23:48													5:08	11:25	17:30	23:48
	W 10	7.1	-0.4	7.2	-0.6													6.8	-0.1	7.2	-0.1
	Th 11	5:58	12:10	18:18														4:25	10:27	16:35	22:38
	F 12	7.4	-0.7	7.7														6.6	-0.5	7.7	-0.5
	S 13	0:37	6:45	12:56	19:04													5:08	11:19	17:33	23:50
	Th 14	-0.9	7.6	-0.9	8.0													6.8	-0.8	8.0	-0.8
	M 15	1:26	7:31	13:42	19:51													5:59	12:09	18:24	
	W 16	-1.1	7.5	-0.9	8.1													7.0	0.9	8.3	
	Th 17	2:15	8:19	14:30	20:40													0:52	6:50	13:00	19:15
	F 18	-1.1	7.3	-0.8	7.9													-0.9	7.0	-1.0	8.3
	S 19	3:06	9:09	15:20	21:32													1:42	7:42	13:51	20:06
	Th 20	-0.8	7.0	-0.5	7.7													-1.0	7.0	-0.9	8.2
	F 21	4:02	10:01	16:15	22:30													2:34	8:34	14:44	20:58
	S 22	-0.4	6.6	-0.1	7.2													-0.8	6.9	-0.6	7.8
	Th 23	4:59	11:00	17:13	23:30													3:26	9:26	15:39	21:51
	F 24	0.0	6.2	0.2	6.8													-0.6	6.7	-0.2	7.4
	S 25	6:01	12:05	18:20														4:19	10:25	16:38	22:46
	Th 26	0.4	5.9	0.5														-0.4	6.4	0.2	6.9
	M 27	0:35	7:08	13:15	19:20													5:15	11:25	17:41	23:40
	W 28	6.4	0.6	5.8	0.7													-0.1	6.2	0.6	6.4
	Th 29	1:41	8:15	14:25	20:40													6:10	12:25	18:43	
	F 30	6.2	0.6	5.8	0.6													0.3	6.0	0.8	
	S 31	2:48	9:15	15:25	21:41													7:06	13:21	19:46	
	Th 1	6.2	0.5	6.0	0.5													6.0	0.5	6.0	1.0
	F 2	3:50	10:09	16:18	22:35													1:41	8:09	14:17	20:44
	S 3	6.2	0.3	6.8	0.3													5.8	0.5	6.0	1.0
	Th 4	4:42	10:55	17:08	23:21													2:42	8:54	15:06	21:37
	F 5	6.4	0.1	6.5	0.2													3:36	9:42	15:55	22:24
	S 6	5:28	11:37	17:48														4:18	10:24	16:36	22:06
	Th 7	6.5	0.0	6.7														5.5	0.5	6.4	0.8
	M 8	0:04	6:05	12:15	18:22													6:11	11:05	17:18	23:44
	W 9	0.1	6.4	0.0	6.8													5.3	0.5	6.5	0.7
	Th 10	0:40	6:39	12:50	18:55													5:35	11:43	17:50	
	F 11	0.1	6.4	0.0	6.8													5.6	0.5	6.7	
	S 12	1:16	7:12	13:22	19:28													0:30	6:11	12:19	18:27
	Th 13	0.1	6.3	0.2	6.8													0.5	5.7	0.4	6.9
	F 14	1:50	7:45	13:54	20:00													0:55	6:46	12:56	19:05
	S 15	0.2	6.1	0.4	6.7													1:33	7:24	13:33	19:44
	Th 16	2:24	8:17	14:27														0.3	5.9	0.5	7.0
	F 17	0.4	6.0	0.6														2:12	8:04	14:12	20:25
	S 18	3:00	9:02	15:00	21:14													0.2	5.9	0.6	7.0
	Th 19	0.5	5.8	0.8	6.5													2:54	8:47	14:54	21:10
	F 20	3:40	9:31	15:39	21:55													0.2	6.0	0.6	6.8
	S 21	4:25	10:18	16:25	22:43													3:39	9:35	15:42	21:57
	Th 22	5:17	11:10	17:20	23:38													0.2	6.1	0.7	6.6
	F 23	0.9	5.4	1.3	6.0													4:27	10:27	16:35	22:48
	S 24																	0.3	6.1	0.8	6.4
	Th 25																	5:17	11:23	17:36	23:44
	F 26																	0.4	6.2	0.8	6.2
	S 27																	6:12	12:21	18:40	
	Th 28																	0.6	6.3	0.8	
	F 29																	0:45	7:09	13:21	19:47
	S 30																	6.0	0.4	6.5	0.7

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☉, new moon; ☾, 1st. quar.; ☊, full moon; ☌, 3d. quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.											
Mo.	Day of W. Mo.	Time and Height of Hight Low Water.									
P	S 1	1:48 6.0	8:08 0.2	14:22 6.8	20:52 0.4	P	W 1	8:33 0.0	9:47 -0.1	16:06 7.2	17:20 0.1
	M 2	2:51 6.1	9:07 0.0	15:23 7.2	21:54 0.2	S	Th 2	4:33 6.2	10:45 -0.4	17:01 7.6	23:38 -0.2
S	Tu 3	3:51 6.2	10:04 -0.3	16:20 7.5	22:52 -0.2	F	3	5:29 6.5	11:40 -0.6	17:58 7.7	
	W 4	4:48 6.4	11:03 -0.6	17:15 7.8	23:45 -0.5	S	4	6:22 -0.5	12:32 6.2	18:44 -0.7	24:44 7.8
O	Th 5	5:43 6.7	11:53 -0.8	18:08 8.1		S	5	7:12 -0.7	13:22 6.9	19:32 -0.7	25:32 7.7
	F 6	6:38 -0.7	12:44 6.8	18:59 -0.9	19:49 8.1	M	6	8:06 -0.7	14:11 7.0	20:19 -0.6	26:22 7.5
N	S 7	7:27 -0.8	13:36 6.9	19:49 -0.8	20:37 8.0	Tu	7	8:46 -0.6	14:59 7.0	21:06 -0.3	27:06 7.2
	S 8	8:16 -0.9	14:28 6.9	20:37 -0.6	21:25 7.7	W	8	9:32 -0.4	15:47 6.8	21:50 0.1	27:58 6.8
E	M 9	9:04 -0.7	15:21 6.8	21:25 -0.3	22:11 7.3	Th	9	10:17 -0.1	16:35 6.5	22:36 0.5	28:50 6.3
	Tu 10	10:04 -0.4	16:15 6.6	22:20 0.1	23:00 6.9	F	10	11:08 0.3	17:24 6.2	23:21 0.9	29:42 6.6
C	W 11	10:43 -0.1	17:10 6.4	23:18 0.6	23:45 6.4	S	11	11:51 0.7	18:16 6.0		
	Th 12	11:34 0.2	18:07 6.2			A	S 12	12:41 0.9	19:11 5.4	0:09 5.6	1:01 1.5
A	F 13	12:23 5.9	18:58 6.0	19:08 1.2		M	13	1:00 6.1	7:19 1.1	13:32 5.7	20:06 1.6
	S 14	13:10 5.6	19:46 0.7	20:00 1.3		Tu	14	2:06 4.9	8:12 1.2	14:25 5.8	21:01 1.5
N	S 15	1:08 5.3	8:09 0.8	14:23 5.9	20:56 1.4	W	15	3:00 5.0	9:06 1.1	15:16 5.9	21:52 1.9
	M 16	2:46 5.1	8:59 0.9	15:12 6.0	21:46 1.3	N	Th 16	4:00 5.1	10:09 0.9	16:04 6.2	22:39 1.0
E	Tu 17	3:25 5.1	9:46 0.8	15:57 6.1	22:31 1.1	F	17	4:31 5.4	10:42 0.7	16:51 6.5	23:23 0.6
	W 18	4:21 5.2	10:30 0.7	16:39 6.3	23:18 0.9	S	18	5:17 5.8	11:22 0.4	17:36 6.9	
C	Th 19	5:03 5.4	11:12 0.6	17:20 6.6	23:51 0.6	S	19	6:06 0.2	12:11 6.2	18:20 0.1	24:06 7.2
	F 20	5:43 5.6	11:58 0.5	18:01 6.9		M	20	6:45 -0.2	12:54 6.6	19:03 -0.2	24:54 7.8
A	S 21	6:30 0.3	12:43 0.3	12:33 7.1		Tu	21	7:26 -0.4	13:36 6.9	19:48 -0.3	25:44 7.4
	S 22	7:10 0.1	13:28 0.1	13:18 7.2		W	22	8:10 -0.5	14:23 7.1	20:34 -0.8	26:34 7.8
N	M 23	7:51 -0.1	14:05 0.2	13:56 7.2		E	Th 23	8:57 -0.4	15:12 7.2	21:21 -0.2	27:21 7.1
	Tu 24	8:32 -0.2	14:50 0.3	14:36 7.1		F	24	9:37 -0.3	16:04 7.2	22:10 -0.1	28:10 6.8
E	W 25	9:16 -0.2	15:36 0.6	15:26 6.9		S	25	10:26 -0.1	16:56 7.0	22:59 0.2	29:00 6.4
	Th 26	10:01 0.0	16:20 0.6	16:13 6.6		S	26	11:13 0.2	17:40 6.8	23:46 0.5	
C	F 27	10:40 0.1	17:05 0.7	17:17 6.3		M	27	12:01 6.0	18:26 6.4	24:32 0.7	30:30 0.7
	S 28	11:24 0.2	17:50 0.7	17:57 6.6		Tu	28	12:50 5.8	19:12 6.4	25:17 6.6	31:17 0.7
A	S 29	12:02 0.0	18:34 0.8	18:57 6.7		W	29	13:39 5.7	20:00 6.4	26:02 0.8	32:02 0.6
	M 30	12:42 0.8	19:18 0.8	19:33 6.6		Th	30	14:28 5.8	20:49 0.1	26:49 6.9	32:50 -0.2
N	Tu 31	13:22 0.8	20:02 0.1	20:14 7.0		F	31	15:16 6.1	21:37 -0.2	27:37 7.1	33:37 -0.1

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OCTOBER.				NOVEMBER.				DECEMBER.			
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.				
FO	M 1	5:50 6.9	12:05 -0.3	18:12 7.0	19:00 6.3	A	Th 1	0:33 -0.1	6:40 7.0	13:03 0.0	19:00 6.3
	Tu 2	0:24 -0.3	6:31 7.1	12:48 -0.4	18:52 7.0		F 2	1:09 0.0	7:15 7.0	13:40 0.1	19:34 6.2
	W 3	1:08 -0.4	7:09 7.1	13:28 -0.3	19:29 6.8		S 3	1:44 0.2	7:50 6.9	14:14 0.8	20:08 6.0
A	Th 4	1:40 -0.2	7:47 7.0	14:07 -0.1	20:06 6.6	N	S 4	2:18 0.5	8:25 6.7	14:51 0.5	20:48 5.8
	F 5	2:16 0.0	8:24 6.9	14:44 0.2	20:41 6.3		M 5	2:52 0.8	9:02 6.5	15:30 0.6	21:21 5.6
	S 6	2:52 0.3	9:00 6.7	15:22 0.5	21:17 6.0		Tu 6	3:28 1.1	9:42 6.8	16:12 0.8	22:04 5.4
N	S 7	3:29 0.7	9:37 6.4	16:01 0.8	21:55 5.7	C	W 7	4:10 1.3	10:27 6.1	17:00 0.9	22:54 5.3
	M 8	4:08 1.0	10:17 6.1	16:45 1.0	22:38 5.4		Th 8	5:00 1.4	11:17 5.9	17:53 1.0	23:51 5.3
	Tu 9	4:50 1.3	11:02 5.8	17:34 1.2	23:27 5.1		F 9	6:00 1.5	12:13 5.8	18:48 1.1	24:44 5.1
C	W 10	5:40 1.5	11:58 5.7	18:29 1.3	24:22 5.0	E	S 10	6:58 5.5	13:06 1.4	19:47 0.9	25:44 5.0
	Th 11	0:25 5.0	6:38 1.6	12:51 5.6	19:29 1.3		S 11	1:55 5.8	8:12 1.0	14:18 0.6	20:44 0.6
	F 12	1:28 6.1	7:44 1.4	13:52 5.7	20:28 1.1		M 12	2:52 6.8	9:18 0.6	15:18 0.2	21:38 0.2
E	S 13	2:31 5.5	8:46 1.1	14:52 6.0	21:28 0.8	P	Tu 13	3:46 6.8	10:10 0.1	16:14 0.6	22:30 -0.2
	S 14	3:27 6.0	9:43 0.6	15:50 6.3	22:15 0.3		W 14	4:37 7.3	11:03 -0.4	17:06 6.9	23:18 -0.6
	M 15	4:29 6.5	10:31 0.1	16:48 6.7	23:02 -0.1		Th 15	5:27 7.8	11:53 -0.8	17:55 7.1	23:58 -0.1
P	Tu 16	5:07 7.0	11:25 -0.3	17:38 7.1	23:47 -0.5	S	F 16	0:06 -0.8	6:16 8.2	12:43 -1.0	18:43 7.2
	W 17	5:58 7.5	12:13 -0.7	18:20 7.4	24:22 -0.1		S 17	0:54 -0.9	7:06 8.3	13:33 -1.0	19:32 7.1
	Th 18	0:31 -0.8	6:38 7.9	13:01 -1.0	19:06 7.4		S 18	1:43 -0.9	7:57 8.2	14:24 -0.9	20:24 7.0
S	F 19	1:17 -0.9	7:25 8.1	13:51 -1.0	19:52 7.3	D	M 19	2:34 -0.8	8:49 8.0	15:17 -0.7	21:17 6.7
	S 20	2:03 -0.8	8:13 8.0	14:40 -0.9	20:41 7.1		Tu 20	3:28 -0.3	9:48 7.6	16:12 -0.4	22:15 6.5
	S 21	2:51 -0.6	9:04 7.8	15:32 -0.7	21:32 6.7		W 21	4:27 0.0	10:40 7.1	17:10 -0.1	23:17 6.2
D	M 22	3:44 -0.3	9:59 7.5	16:28 -0.2	22:29 6.4	E	Th 22	5:31 0.4	11:41 6.7	18:10 0.1	24:10 6.1
	Tu 23	4:41 0.1	10:57 7.0	17:29 0.2	23:31 6.1		F 23	0:22 6.1	6:38 0.6	12:47 0.8	19:12 0.4
	W 24	5:46 0.4	12:00 6.6	18:33 0.4	24:22 6.1		S 24	1:26 6.1	7:48 0.7	13:53 0.1	20:13 0.4
E	Th 25	0:39 5.9	6:55 0.6	13:07 6.3	19:39 0.5	A	S 25	2:27 6.1	8:51 0.7	14:55 6.0	21:08 0.8
	F 26	1:50 5.9	8:07 0.7	14:15 6.2	20:43 0.5		M 26	3:22 6.8	9:47 0.6	15:49 6.0	21:58 0.2
	S 27	2:54 6.1	9:13 0.5	15:20 6.3	21:41 0.3		Tu 27	4:11 6.5	10:38 0.5	16:37 6.0	22:44 0.1
A	S 28	3:50 6.4	10:10 0.8	16:18 6.4	22:31 0.1	N	W 28	4:55 6.7	11:22 0.4	17:19 6.0	23:25 0.1
	M 29	4:38 6.7	11:01 0.1	17:05 6.5	23:15 -0.1		Th 29	5:38 6.8	12:02 0.4	17:56 5.9	24:08 5.9
	Tu 30	5:23 6.9	11:45 0.0	17:47 6.5	23:51 -0.2		F 30	0:08 0.2	6:10 6.9	12:38 0.4	18:31 5.9
N	W 31	6:08 7.0	12:21 -0.1	18:25 6.4	24:22 5.8	S	M 31	0:47 0.5	6:53 6.8	13:22 0.4	19:13 5.8

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JANUARY.										FEBRUARY.										MARCH.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.							W.		Mo.							W.	Mo.										
E D	M	1	6:06 0.7	12:10 5.4	18:30 0.5					A	Th	1	0:47 5.3	7:00 1.1	12:59 4.8	19:17 0.8	D	Th	1	5:27 0.8	11:25 5.0	17:41 0.7							
	Tu	2	0:46 5.2	7:00 1.0	13:00 5.1	19:20 0.6	F	2	1:39 5.3		7:55 1.2	13:50 4.5	20:08 0.8	F	2	0:00 5.4		6:13 1.0	12:07 4.8	18:25 0.9									
	W	3	1:38 5.2	7:55 1.1	13:58 4.9	20:11 0.7	S	3	2:31 5.3		8:51 1.2	14:48 4.5	21:01 0.8	S	3	0:46 5.8		7:05 1.2	12:58 4.6	19:17 1.0									
A	Th	4	2:30 5.2	8:50 1.1	14:48 4.7	21:00 0.7	S	4	3:25 5.4	9:50 1.1	15:45 4.6	21:55 0.7	S	4	1:40 5.8	8:02 1.2	13:56 4.5	20:15 1.0	N	M	5	2:40 5.3	9:05 1.0	15:02 4.6	21:16 0.8				
	F	5	3:21 5.4	9:44 1.1	15:41 4.7	21:50 0.6	M	5	4:17 5.6	10:42 0.8	16:43 4.8	22:49 0.5	M	5	2:40 5.3	9:05 1.0	15:02 4.6	21:16 0.8											
	S	6	4:10 5.6	10:35 0.9	16:38 4.8	22:37 0.5	Tu	6	5:09 5.9	11:35 0.5	17:36 5.0	23:39 0.2	Tu	6	3:39 5.5	10:05 0.8	16:05 4.8	22:16 0.5											
N	S	7	4:56 5.8	11:22 0.7	17:20 4.9	23:22 0.4	W	7	5:58 6.2	12:21 0.2	18:22 5.3		W	7	4:36 5.8	11:00 0.4	17:04 5.2	23:12 0.2	O	Th	8	5:30 6.2	11:52 0.0	17:55 5.6					
	M	8	5:41 6.0	12:06 0.5	18:05 5.0		Th	8	0:27 -0.1	6:45 6.5	13:06 -0.1	19:08 5.6	Th	8	5:30 6.2	11:52 0.0	17:55 5.6												
	Tu	9	0:07 0.2	6:25 6.3	12:49 0.8	18:49 5.2	F	9	1:14 -0.3	7:30 6.6	13:50 -0.3	19:52 5.9	F	9	0:05 -0.2	6:20 6.5	12:38 -0.3	18:44 6.1											
O	W	10	0:50 0.1	7:08 6.5	13:30 0.1	19:30 5.3	S	10	2:00 -0.4	8:15 6.7	14:35 -0.5	20:35 6.1	S	10	0:55 -0.5	7:10 6.6	13:25 -0.6	19:30 6.4	E	S	11	1:41 -0.7	7:55 6.8	14:10 -0.7	20:15 6.6				
	Th	11	1:33 0.0	7:50 6.6	14:12 -0.1	20:11 5.5	S	11	2:45 -0.4	9:00 6.6	15:17 -0.5	21:20 6.2	S	11	1:41 -0.7	7:55 6.8	14:10 -0.7	20:15 6.6											
	F	12	2:15 0.0	8:34 6.6	14:55 -0.2	20:53 5.6	M	12	3:32 -0.3	9:46 6.5	16:01 -0.4	22:06 6.3	M	12	2:30 -0.7	8:40 6.7	14:58 -0.7	21:02 6.7											
P	S	13	3:00 0.0	9:18 6.5	15:38 -0.2	21:40 5.7	Tu	13	4:22 -0.2	10:33 6.2	16:47 -0.2	23:00 6.2	Tu	13	3:18 -0.7	9:28 6.5	15:36 -0.6	21:50 6.7	P	M	12	2:30 -0.7	8:40 6.7	14:58 -0.7	21:02 6.7				
	S	14	3:45 0.1	10:08 6.3	16:28 -0.2	22:25 5.8	W	14	5:15 0.0	11:22 5.8	17:37 0.0	23:55 6.1	W	14	4:08 -0.5	10:15 6.2	16:24 -0.4	22:40 6.5											
	M	15	4:35 0.2	10:51 6.0	17:11 0.0	23:19 5.8	Th	15	6:14 0.3	12:18 5.5	18:33 0.1		Th	15	5:00 -0.2	11:05 5.8	17:15 -0.1	23:35 6.3											
E	Tu	16	5:30 0.3	11:42 5.8	18:00 0.1		F	16	0:56 6.0	7:16 0.5	13:20 5.2	19:33 0.3	F	16	5:58 0.2	12:00 5.4	18:11 0.2		C	S	17	0:35 6.0	7:00 0.5	13:04 5.1	19:14 0.4				
	W	17	0:15 5.8	6:30 0.4	12:39 5.5	18:57 0.2	S	17	1:58 5.9	8:25 0.7	14:30 5.0	20:38 0.3	S	17	0:35 6.0	7:00 0.5	13:04 5.1	19:14 0.4											
	Th	18	1:17 5.9	7:36 0.5	13:40 5.3	20:2 0.2	S	18	3:06 6.0	9:36 0.6	15:40 5.0	21:45 0.2	S	18	1:40 5.8	8:08 0.7	14:14 4.9	20:22 0.5											
P	F	19	2:20 6.0	8:43 0.6	14:48 5.1	21:00 0.1	M	19	4:10 6.1	10:41 0.5	16:46 5.2	22:48 0.0	M	19	2:47 5.8	9:17 0.6	15:25 5.0	21:31 0.4	M	Tu	20	3:52 5.8	10:20 0.5	16:30 5.2	22:35 0.2				
	S	20	3:24 6.1	9:52 0.5	15:55 5.2	22:00 -0.3	Tu	20	5:10 6.3	11:38 0.2	17:43 5.5	23:44 -0.2	Tu	20	3:52 5.8	10:20 0.5	16:30 5.2	22:35 0.2											
	S	21	4:26 6.3	10:56 0.3	16:59 5.3	23:02 -0.3	W	21	6:04 6.4	12:30 0.0	18:35 5.7		W	21	4:52 5.9	11:16 0.3	17:26 5.5	23:31 0.0											
S	M	22	5:25 6.6	11:55 0.0	17:55 5.5	23:59 -0.5	Th	22	0:38 -0.3	6:54 6.5	13:16 -0.2	19:22 5.9	Th	22	5:45 6.1	12:06 0.0	18:16 5.8		E	F	23	0:22 -0.1	6:35 6.2	12:50 -0.1	19:00 6.0				
	Tu	23	6:19 6.8	12:45 -0.2	18:50 5.7		F	23	1:25 -0.4	7:38 6.5	13:55 -0.3	20:05 6.0	F	23	0:22 -0.1	6:35 6.2	12:50 -0.1	19:00 6.0											
	W	24	0:51 -0.6	7:10 -6.9	13:35 -0.3	19:40 5.8	S	24	2:10 -0.3	8:20 6.4	14:36 -0.3	20:43 6.0	S	24	1:10 -0.2	7:16 6.2	13:30 -0.2	19:37 6.1											
E	Th	25	1:40 -0.5	7:57 6.8	14:20 -0.4	20:25 5.9	S	25	2:52 -0.1	9:00 6.2	15:13 -0.1	21:21 5.9	S	25	1:50 -0.1	7:57 6.1	14:05 -0.1	20:13 6.1	A	M	26	2:27 0.0	8:32 5.9	14:40 0.0	20:48 6.1				
	F	26	2:28 -0.4	8:42 6.7	15:03 -0.4	21:10 5.9	M	26	3:33 0.1	9:36 5.9	15:48 0.1	22:00 5.8	M	26	2:27 0.0	8:32 5.9	14:40 0.0	20:48 6.1											
	S	27	3:15 -0.2	9:25 6.4	15:44 -0.3	21:52 5.8	Tu	27	4:10 0.4	10:14 5.6	16:24 0.3	22:36 5.7	Tu	27	3:03 0.1	9:06 5.6	15:11 0.2	21:25 6.0											
E	S	28	3:59 0.1	10:08 6.1	16:25 -0.1	22:35 5.6	W	28	4:48 0.6	10:48 5.3	17:00 0.5	23:15 5.5	W	28	3:38 0.3	9:40 5.4	15:45 0.4	21:58 5.8	A	Th	29	4:12 0.5	10:10 5.2	16:18 0.6	22:34 5.6				
	M	29	4:42 0.4	10:49 5.7	17:04 0.2	23:16 5.6							Th	29	4:12 0.5	10:10 5.2	16:18 0.6	22:34 5.6											
	Tu	30	5:27 0.7	11:30 5.3	17:45 0.5								F	30	4:50 0.7	10:45 5.0	16:54 0.8	23:15 5.5											
W	31	0:00 5.4	6:12 0.9	12:12 5.0	18:30 0.7								S	31	5:34 0.8	11:26 4.8	17:40 1.0												

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Central Standard, 90th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.					
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		
	W.	Mo.				W.	Mo.				W.	Mo.			
N	S	1	0:05	6:25	12:20	18:31	12:24	6:50	12:50	19:00	F	1	1:55	8:20	
U			5.4	0.9	4.7	1.0	5.5	0.7	4.9	1.0			5.4	0.4	
	M	2	0:58	7:24	13:20	19:34	1:24	7:52	13:55	20:10	E	S	2	3:00	9:18
			5.3	1.0	4.7	1.0	5.4	0.7	5.0	0.8			5.5	0.1	
	Tu	3	2:00	8:26	14:26	20:42	2:28	8:53	15:03	21:18	S	3	4:03	10:18	
			5.4	0.9	4.8	0.9	5.5	0.6	5.4	0.5			5.6	-0.2	
	W	4	3:05	9:29	15:34	21:48	3:32	9:51	16:04	22:22	M	4	5:02	11:11	
			5.5	0.6	5.1	0.5	5.6	0.2	5.8	0.2			5.8	-0.5	
	Th	5	4:05	10:27	16:33	22:47	4:30	10:47	17:00	23:20	P	Tu	5	5:58	12:04
			5.7	0.3	5.5	0.1	5.9	-0.1	6.3	-0.3			6.0	-0.7	
	F	6	5:01	11:20	17:28	23:41	5:28	11:40	17:52		O	W	6	0:48	6:50
			6.1	-0.1	6.0	-0.3	6.2	-0.5	6.7				-0.6	6.1	
	S	7	5:55	12:10	18:18		0:14	6:20	12:30	18:42	Th	7	1:38	7:42	
			6.4	-0.4	6.5		-0.7	6.3	-0.8	7.1			-0.7	6.1	
E	S	8	0:34	6:45	12:56	19:06	1:05	7:11	13:20	19:32	S	F	8	2:30	8:34
			-0.6	6.6	-0.7	6.8	-0.9	6.4	-0.9	7.3			-0.7	6.1	
O	M	9	1:25	7:33	13:43	19:52	1:55	8:00	14:06	20:22	S	9	3:20	9:24	
			-0.9	6.7	-0.8	7.1	-0.9	6.4	-0.9	7.4			-0.6	5.9	
P	Tu	10	2:12	8:20	14:28	20:40	2:45	8:50	14:54	21:12	S	10	4:10	10:16	
			-1.0	6.6	-0.8	7.1	-0.9	6.2	-0.8	7.2			-0.4	5.8	
	W	11	3:00	9:08	15:15	21:30	3:35	9:40	15:45	22:04	M	11	5:00	11:10	
			-0.9	6.4	-0.7	7.0	-0.7	6.0	-0.5	6.9			-0.2	5.5	
	Th	12	3:50	9:56	16:01	22:21	4:27	10:34	16:38	22:58	Tu	12	5:55	12:06	
			-0.6	6.1	-0.5	6.8	-0.4	5.7	-0.2	6.5			0.0	5.4	
	F	13	4:44	10:48	16:55	23:16	5:22	11:29	17:34	23:55	C	W	13	0:25	6:48
			-0.3	5.7	-0.1	6.4	0.0	5.4	0.2	6.1			5.7	0.3	
S	S	14	5:40	11:45	17:52		6:20	12:30	18:38		Th	14	1:25	7:42	
			0.1	5.4	0.2		0.2	5.2	0.5				5.4	0.4	
C	S	15	0:15	6:40	12:46	18:56	0:55	7:20	13:34	19:45	E	F	15	2:21	8:35
			6.1	0.4	5.1	0.5	5.8	0.4	5.2	0.7			5.2	0.5	
	M	16	1:19	7:46	13:56	20:05	1:58	8:20	14:38	20:50	S	16	3:20	9:29	
			5.8	0.5	5.0	0.6	5.5	0.5	5.2	0.7			5.1	0.5	
	Tu	17	2:25	8:51	15:15	21:14	3:01	9:18	15:36	21:54	S	17	4:14	10:18	
			5.6	0.6	5.1	0.6	5.4	0.5	5.4	0.7			5.0	0.4	
	W	18	3:30	9:53	16:08	22:18	4:00	10:12	16:30	22:50	A	M	18	5:02	11:05
			5.5	0.5	5.3	0.4	5.4	0.4	5.6	0.6			5.0	0.3	
	Th	19	4:30	10:48	17:02	23:15	4:54	11:00	17:17	23:36	Tu	19	5:46	11:50	
			5.6	0.3	5.5	0.3	5.4	0.2	5.8	0.4			5.0	0.3	
	F	20	5:25	11:36	17:49		5:40	11:45	17:59		W	20	0:28	6:26	
			5.7	0.1	5.8		5.4	0.1	6.0				0.5	5.0	
E	S	21	0:02	6:12	12:18	18:32	0:17	6:21	12:21	18:37	●	Th	21	1:06	7:04
			0.2	5.8	0.0	6.0	0.3	5.3	0.1	6.1			0.4	5.1	
	S	22	0:48	6:52	12:57	19:08	1:00	7:00	13:00	19:12	N	F	22	1:41	7:45
			0.1	5.8	-0.1	6.1	0.3	5.3	0.1	6.1			0.3	5.1	
●	M	23	1:25	7:30	13:34	19:45	1:34	7:34	13:32	19:46	S	23	2:17	8:16	
			0.0	5.7	0.0	6.1	0.3	5.2	0.2	6.2			0.2	5.1	
	Tu	24	2:05	8:04	14:07	20:17	2:08	8:07	14:10	20:22	S	24	2:56	8:52	
			0.1	5.5	0.1	6.1	0.3	5.1	0.3	6.2			0.2	5.2	
A	W	25	2:35	8:36	14:40	20:50	2:43	8:39	14:40	21:00	M	25	3:40	9:34	
			0.2	5.4	0.3	6.0	0.3	5.1	0.5	6.1			0.2	5.3	
	Th	26	3:09	9:07	15:10	21:25	3:20	9:10	15:15	21:35	Tu	26	4:20	10:18	
			0.3	5.2	0.5	5.9	0.3	5.1	0.6	6.0			0.2	5.3	
	F	27	3:44	9:45	15:43	22:01	3:58	9:49	15:54	22:17	W	27	5:07	11:08	
			0.4	5.1	0.7	5.8	0.4	5.0	0.7	5.9			0.2	5.4	
	S	28	4:20	10:11	16:20	22:45	4:40	10:34	16:40	23:05	Th	28	5:55	12:05	
			0.5	5.0	0.8	5.7	0.4	6.0	0.8	5.7			0.3	5.5	
N	S	29	5:05	10:55	17:04	23:30	5:30	11:25	17:38	23:56	E	F	29	0:27	6:50
			0.6	4.9	0.9	5.6	0.5	5.1	0.8	5.6			5.5	0.3	
	M	30	5:55	11:48	17:56		6:25	12:24	18:35		S	30	1:26	7:49	
			0.7	4.8	1.0		0.5	6.2	0.8				5.4	0.3	
							0:53	7:20	13:29	19:41					
							5.5	0.5	5.3	0.7					

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 30 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Central Standard, 90th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.





OCTOBER.					NOVEMBER.					DECEMBER.									
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.					
E	M 1	0:27 0.1	6:37 6.0	12:48 -0.2	18:58 6.2	A	Th 1	1:15 -0.1	7:27 6.2	13:47 0.0	19:49 5.5	N	S 1	1:20 0.2	7:34 6.2	13:57 0.3	19:54 5.1		
	Tu 2	1:08 -0.2	7:18 6.2	13:32 -0.3	19:40 6.1		F 2	1:50 0.0	8:02 6.2	14:23 0.1	20:23 5.3		S 2	1:55 0.3	8:09 6.1	14:31 0.4	20:27 5.0		
	W 3	1:47 -0.3	7:57 6.3	14:12 -0.2	20:18 5.9		S 3	2:24 0.2	8:37 6.1	14:57 0.3	20:55 5.2		M 3	2:28 0.5	8:45 6.1	15:05 0.4	20:59 5.0		
	Th 4	2:23 -0.2	8:33 6.2	14:50 0.0	20:53 5.7		S 4	2:57 0.4	9:12 6.0	15:31 0.4	21:25 5.0		Tu 4	3:01 0.6	9:20 6.0	15:43 0.4	21:35 5.0		
	F 5	2:57 0.0	9:08 6.1	15:25 0.2	21:27 5.4		M 5	3:29 0.6	9:48 5.8	16:08 0.6	21:59 4.9		W 5	3:38 0.8	10:00 5.8	16:24 0.5	22:16 5.0		
A	S 6	3:30 0.3	9:45 5.9	16:00 0.4	21:58 5.2	N	Tu 6	4:04 0.8	10:27 5.7	16:49 0.7	22:39 4.8	C	Th 6	4:20 0.8	10:43 5.8	17:10 0.5	23:05 5.0		
	S 7	4:03 0.6	10:22 5.7	16:38 0.7	22:33 4.9		W 7	4:47 1.0	11:10 5.5	17:36 0.7	23:29 4.8		F 7	5:10 0.9	11:32 5.5	18:00 0.5			
	M 8	4:41 0.8	11:00 5.5	17:20 0.8	23:12 4.8		Th 8	5:37 1.1	12:01 5.4	18:29 0.8			S 8	6:00 5.1	6:10 0.9	12:25 5.4	18:52 0.5		
	Tu 9	5:23 1.0	11:46 5.4	18:08 1.0			C	F 9	6:27 4.8	6:37 1.1	12:59 5.3		19:28 0.7	E	S 9	1:02 5.3	7:12 0.8	13:25 5.4	19:50 0.4
	W 10	6:00 4.6	6:13 1.1	12:38 5.3	19:03 1.0			S 10	1:32 5.0	7:43 1.0	14:00 5.3		20:27 0.6		M 10	2:06 5.5	8:20 0.6	14:30 5.4	20:50 0.2
Th 11	1:00 4.6	7:13 1.2	13:37 5.2	20:03 0.9	S 11	2:37 5.3		8:50 0.7	15:03 5.5	21:25 0.3	Tu 11	3:09 5.9	9:27 0.3		15:33 5.5	21:48 -0.1			
F 12	2:04 4.7	8:18 1.0	14:38 5.3	21:05 0.7	M 12	3:38 5.7		9:54 0.3	16:04 5.7	22:20 0.0	W 12	4:06 6.8	10:30 0.0		16:34 5.7	22:43 -0.4			
S 13	3:10 5.0	9:23 0.7	15:40 5.5	22:02 0.5	E	Tu 13		4:34 6.1	10:53 -0.1	17:01 6.0	23:13 -0.4	P	Th 13		5:08 6.7	11:27 -0.3	17:31 5.8	23:38 -0.6	
S 14	4:10 5.4	10:23 0.3	16:36 5.8	22:50 0.1		W 14	5:27 6.6	11:48 -0.5	17:54 6.1		F 14		5:59 7.1	12:20 -0.5	18:25 6.0				
M 15	5:04 5.9	11:18 -0.1	17:30 6.1	23:44 -0.3		Th 15	6:03 -0.7	6:18 7.0	12:40 -0.8	18:46 6.3	S		S 15	6:30 -0.8	6:50 7.3	13:15 -0.7	19:17 6.1		
Tu 16	6:53 6.3	12:10 -0.4	18:20 6.4			F 16	6:52 -0.8	7:08 7.3	13:30 -0.9	19:35 6.3			S 16	1:20 -0.9	7:40 7.4	14:05 -0.7	20:07 6.1		
W 17	0:32 -0.6	6:42 6.7	13:00 -0.8	19:08 6.5		S 17	1:40 -0.9	7:58 7.4	14:20 -0.9	20:25 6.2			M 17	2:10 -0.8	8:31 7.3	14:55 -0.7	21:06 6.0		
Th 18	1:17 -0.8	7:28 7.0	13:48 -0.9	19:55 6.5	S 18	2:28 -0.8	8:48 7.3	15:11 -0.7	21:15 6.0	Tu 18		3:02 -0.6	9:24 7.1	15:45 -0.5	21:52 5.9				
P	F 19	2:03 -0.8	8:11 7.1	14:37 -0.9	20:42 6.3	S	M 19	3:18 -0.6	9:39 7.0	16:02 -0.5		22:07 5.8	W 19	3:55 -0.3	10:15 6.7	16:38 -0.3	22:45 5.7		
	S 20	2:48 -0.7	9:05 7.1	15:25 -0.7	21:30 6.1		Tu 20	4:10 -0.2	10:32 6.7	16:55 -0.2	23:02 5.5	Th 20	4:52 0.0	11:08 6.3	17:30 -0.1	23:41 5.5			
	S 21	3:36 -0.5	9:55 6.9	16:17 -0.4	22:21 5.8		W 21	5:07 0.1	11:28 6.3	17:52 0.0		F 21	5:50 0.3	12:02 5.9	18:24 0.1				
	M 22	4:27 -0.2	10:48 6.6	17:12 -0.1	23:16 5.4		D	Th 22	6:01 5.3	6:10 0.4	12:28 5.8	18:52 0.2	E	S 22	6:38 5.5	6:51 0.6	13:00 5.5	19:18 0.3	
	Tu 23	5:23 0.1	11:45 6.2	18:10 0.2				F 23	1:05 5.2	7:12 0.6	13:30 5.6	19:52 0.4		S 23	1:36 5.4	7:54 0.8	14:00 5.1	20:13 0.4	
W 24	6:17 5.2	6:25 0.4	12:47 5.9	19:15 0.4	S 24	2:10 5.3		8:23 0.7	14:34 5.4	20:52 0.4	M 24	2:35 5.4		8:55 0.8	14:58 5.1	21:06 0.4			
Th 25	1:24 5.0	7:33 0.6	13:54 5.6	20:20 0.5	E	S 25		3:10 5.4	9:28 0.7	15:36 5.4	21:47 0.3	Tu 25		3:30 5.5	9:52 0.8	15:55 5.0	21:58 0.4		
F 26	2:34 5.1	8:43 0.6	15:01 5.5	21:23 0.4		M 26		4:05 5.6	10:26 0.5	16:22 5.4	22:37 0.2	W 26		4:20 5.7	10:45 0.8	16:45 5.0	22:47 0.3		
S 27	3:38 5.3	9:51 0.5	16:04 5.6	22:22 0.3		Tu 27	4:55 5.9	11:16 0.4	17:21 5.4	23:22 0.1	Th 27	5:05 5.8	11:31 0.7	17:31 5.0	23:30 0.3				
S 28	4:36 5.6	10:50 0.3	17:00 5.7	23:12 0.1		W 28	5:40 6.0	12:01 0.4	18:05 5.3		A	F 28	5:49 6.0	12:15 0.6	18:14 5.0				
E	M 29	5:25 5.9	11:42 0.1	17:50 5.8		23:57 0.0	Th 29	6:05 0.0	6:20 6.1	12:43 0.3		18:45 5.3	S 29	6:10 0.3	6:29 6.0	12:53 0.5	18:52 5.0		
	Tu 30	6:09 6.1	12:27 0.0	18:35 5.8		O	F 30	6:43 0.1	6:59 6.2	13:20 0.3		19:22 5.2	S 30	6:50 0.3	7:07 6.1	13:30 0.4	19:28 5.0		
O	W 31	6:38 -0.1	6:50 6.2	13:09 0.0	19:13 5.7							M 31	1:28 0.3	7:42 6.2	14:05 0.3	20:02 5.1			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 3.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Central Standard, 90th meridian, W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.							FEBRUARY.							MARCH.						
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
E D A	M	1	0:34 1.1	6:46 0.0	13:44 1.1	19:16 0.3	D A	Th	1	2:05 0.7	7:04 0.8	14:21 1.1	20:36 0.3	A D N	Th	1	0:20 0.8	5:37 0.2	12:22 1.2	18:40 0.2
	Tu	2	1:36 0.9	7:29 0.2	14:34 1.1	20:34 0.8		F	2	3:33 0.6	7:43 0.4	15:13 1.2	21:51 0.2		F	2	1:17 0.7	6:07 0.3	13:01 1.2	19:37 0.2
	W	3	2:56 0.8	8:11 0.3	15:24 1.1	21:56 0.3		S	3	4:48 0.6	8:32 0.5	16:07 1.2	23:04 0.1		S	3	2:50 0.6	6:45 0.4	13:56 1.2	20:48 0.2
	Th	4	4:12 0.8	8:54 0.4	16:12 1.2	22:52 0.2		S	4	5:52 0.6	9:30 0.5	16:58 1.8	23:58 0.0		S	4	4:15 0.6	7:38 0.5	15:07 1.2	22:05 0.1
	F	5	5:20 0.7	9:42 0.4	17:00 1.3	23:48 0.1		M	5	6:48 0.6	10:33 0.5	17:46 1.4			M	5	5:22 0.6	8:49 0.5	16:18 1.3	23:13 0.1
N O	S	6	6:16 0.7	10:28 0.4	17:40 1.4		N C	Tu	6	0:42 -0.1	7:23 0.7	11:32 0.4	18:33 1.5	O	Tu	6	6:12 0.7	10:08 0.4	17:19 1.4	
	S	7	0:34 0.0	7:05 0.7	11:14 0.4	18:17 1.5		W	7	1:18 -0.2	7:59 0.8	12:26 0.3	19:12 1.6		W	7	0:03 0.0	6:50 0.8	11:17 1.3	18:13 1.5
	M	8	1:08 -0.1	7:48 0.7	12:00 0.4	18:54 1.5		Th	8	1:57 -0.3	8:32 0.9	13:16 0.2	20:00 1.7		Th	8	0:46 -0.1	7:24 0.9	12:17 1.2	19:02 1.6
	Tu	9	1:45 -0.2	8:24 0.7	12:45 0.3	19:33 1.6		F	9	2:32 -0.3	9:07 0.9	14:03 0.0	20:43 1.7		F	9	1:24 -0.2	7:57 1.0	13:08 0.0	19:48 1.6
	W	10	2:20 -0.3	9:02 0.8	13:30 0.8	20:12 1.7		S	10	3:08 -0.3	9:39 1.1	14:52 -0.1	21:27 1.6		S	10	2:03 -0.2	8:27 1.2	13:57 -0.1	20:33 1.6
E C P	Th	11	2:57 -0.4	9:38 0.8	14:14 0.2	20:52 1.7	E C	S	11	3:45 -0.2	10:10 1.2	15:43 -0.1	22:13 1.5	P	S	11	2:43 -0.1	8:58 1.3	14:45 -0.2	21:19 1.5
	F	12	3:35 -0.4	10:15 0.9	15:00 0.1	21:33 1.6		M	12	4:28 -0.2	10:44 1.2	16:33 -0.1	23:00 1.4		M	12	3:18 -0.1	9:30 1.4	15:33 -0.3	22:08 1.4
	S	13	4:12 -0.3	10:50 0.9	15:50 0.1	22:18 1.5		Tu	13	5:05 -0.1	11:23 1.3	17:28 -0.1	23:52 1.2		Tu	13	3:53 -0.1	10:08 1.5	16:21 -0.4	22:52 1.3
	S	14	4:50 -0.2	11:25 1.0	16:42 0.1	23:07 1.4		W	14	5:42 0.0	12:08 1.3	18:26 -0.1			W	14	4:30 0.0	10:48 1.5	17:08 -0.3	23:46 1.1
	M	15	5:32 -0.1	12:03 1.1	17:40 0.1			Th	15	0:54 1.0	6:22 0.2	13:01 1.4	19:28 0.0		Th	15	5:07 0.1	11:29 1.5	18:07 -0.2	
S ●	Tu	16	0:00 1.2	6:18 0.0	12:48 1.2	18:44 0.1	C	F	16	2:17 0.8	7:05 0.3	14:05 1.4	20:50 0.0	C	F	16	0:50 0.9	5:51 0.2	12:38 1.5	19:13 -0.1
	W	17	1:05 1.1	7:00 0.1	13:40 1.2	19:55 0.0		S	17	3:48 0.6	8:01 0.4	15:18 1.5	22:21 0.0		S	17	2:13 0.7	6:37 0.3	13:38 1.4	20:33 0.0
	Th	18	2:26 0.9	7:47 0.2	14:40 1.3	21:05 0.0		S	18	5:08 0.6	9:10 0.4	16:32 1.5	23:44 -0.1		S	18	3:37 0.6	7:40 0.4	15:00 1.4	22:08 0.0
	F	19	4:02 0.8	8:37 0.3	15:43 1.4	22:30 -0.1		M	19	6:11 0.7	10:27 0.4	17:37 1.6			M	19	4:53 0.7	9:05 0.4	16:20 1.4	23:27 0.0
	S	20	5:18 0.7	9:37 0.3	16:46 1.5	23:45 -0.2		Tu	20	0:42 -0.2	7:02 0.8	11:40 0.3	18:33 1.7		Tu	20	5:53 0.8	10:37 0.3	17:28 1.5	
E	S	21	6:22 0.7	10:39 0.3	17:45 1.7		P	W	21	1:27 -0.2	7:47 0.9	12:42 0.2	19:26 1.7	S	W	21	0:22 0.0	6:40 0.9	11:50 0.2	18:27 1.5
	M	22	0:47 -0.3	7:15 0.7	11:42 0.2	18:39 1.8		Th	22	2:03 -0.2	8:26 1.0	13:34 0.1	20:12 1.7		Th	22	1:01 0.0	7:20 1.0	12:45 0.1	19:17 1.6
	Tu	23	1:38 -0.3	8:08 0.8	12:40 0.2	19:31 1.8		F	23	2:37 -0.2	9:03 1.1	14:21 0.0	20:56 1.6		F	23	1:39 0.0	7:57 1.2	13:32 0.0	20:02 1.5
	W	24	2:21 -0.4	8:47 0.9	13:33 0.1	20:19 1.8		S	24	3:11 -0.2	9:37 1.2	15:05 0.0	21:37 1.5		S	24	2:10 -0.1	8:28 1.3	14:13 -0.1	20:43 1.4
	Th	25	3:00 -0.4	9:28 1.0	14:23 0.1	21:05 1.7		S	25	3:43 -0.1	10:08 1.2	15:48 0.0	22:17 1.3		S	25	2:37 0.0	8:57 1.3	14:52 -0.1	21:23 1.3
E	F	26	3:37 -0.3	10:08 1.1	15:14 0.1	21:50 1.6	E	M	26	4:13 0.0	10:39 1.2	16:30 0.0	22:56 1.2	A	M	26	3:03 0.0	9:26 1.4	15:29 -0.1	22:00 1.2
	S	27	4:12 -0.2	10:50 1.1	16:08 0.1	22:34 1.4		Tu	27	4:42 0.0	11:12 1.2	17:18 0.0	23:35 1.0		Tu	27	3:29 0.1	9:54 1.4	16:06 -0.1	22:38 1.1
	S	28	4:48 -0.1	11:27 1.2	16:52 0.1	23:18 1.3		W	28	5:10 0.1	11:45 1.2	17:58 0.1			W	28	3:54 0.1	10:20 1.4	16:38 -0.1	23:16 0.9
	M	29	5:26 0.0	12:05 1.2	17:42 0.2										Th	29	4:23 0.2	10:49 1.3	17:17 0.0	23:57 0.8
	Tu	30	0:05 1.1	6:00 0.1	12:46 1.1	18:38 0.2									F	30	4:52 0.3	11:17 1.3	18:01 0.0	
W	31	0:57 0.9	6:34 0.2	13:32 1.1	19:39 0.3								S	31	0:47 0.7	5:27 0.3	11:52 1.2	18:54 0.1		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 0.6 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Central Standard, 90th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; D, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.							MAY.							JUNE.						
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
N D	S	1	2:10 0.6	6:07 0.4	12:44 1.2	19:58 0.1	D	Tu	1	2:47 0.7	6:52 0.5	13:24 1.2	20:22 0.1	E	F	1	8:35 1.0	9:20 0.2	15:55 1.0	21:40 0.2
	M	2	3:40 0.6	7:07 0.5	14:07 1.2	21:12 0.1		W	2	3:50 0.8	8:17 0.4	15:00 1.1	21:26 0.1		S	2	4:24 1.2	10:34 0.0	17:10 1.0	22:31 0.2
	Tu	3	4:45 0.7	8:28 0.5	15:38 1.2	22:19 0.1		Th	3	4:34 0.9	9:40 0.8	16:23 1.1	22:34 0.1		S	3	5:11 1.4	11:30 -0.2	18:16 1.0	23:18 0.2
	W	4	5:31 0.8	9:58 0.4	16:51 1.8	23:16 0.1		F	4	5:12 1.0	10:54 0.1	17:30 1.2	23:23 0.1		M	4	5:58 1.6	12:27 -0.4	19:08 1.0	23:18 0.2
	Th	5	6:07 0.9	11:06 0.3	17:52 1.4	23:19 0.1		S	5	5:50 1.2	11:52 -0.1	18:28 1.3	23:23 0.1		P	Tu	5	6:05 0.2	6:43 1.7	13:20 -0.5
E O	F	6	6:06 0.0	6:40 1.0	12:06 0.1	18:45 1.4	P	S	6	6:06 0.1	6:29 1.4	12:48 -0.3	19:20 1.3	O	W	6	6:51 0.1	7:27 1.8	14:11 -0.6	20:50 1.0
	S	7	6:52 0.0	7:12 1.2	12:58 -0.1	19:34 1.5		M	7	6:46 0.1	7:09 1.6	13:30 -0.5	20:12 1.3		Th	7	1:38 0.1	8:17 1.9	15:00 -0.6	21:37 0.9
	S	8	1:20 -0.1	7:44 1.4	13:47 -0.8	20:21 1.5		Tu	8	1:26 0.1	7:50 1.7	14:20 -0.6	21:00 1.2		S	8	2:22 0.1	9:01 1.9	15:49 -0.6	22:28 0.9
	M	9	2:06 -0.1	8:20 1.5	14:33 -0.5	21:08 1.4		W	9	2:05 0.0	8:33 1.8	15:08 -0.6	21:49 1.1		S	9	3:10 0.1	9:50 1.8	16:37 -0.5	23:18 0.9
	Tu	10	2:42 0.0	8:57 1.6	15:16 -0.5	21:57 1.3		Th	10	2:47 0.1	9:16 1.8	15:58 -0.6	22:40 1.0		S	10	4:02 0.2	10:42 1.7	17:25 -0.3	23:18 0.9
S C	W	11	3:18 0.0	9:37 1.7	16:05 -0.5	22:47 1.1	S	F	11	3:30 0.1	10:02 1.8	16:48 -0.5	23:34 0.9	C	M	11	0:12 0.9	5:00 0.3	11:40 1.5	18:15 -0.1
	Th	12	3:57 0.1	10:20 1.7	16:57 -0.4	23:43 0.9		S	12	4:17 0.2	10:53 1.7	17:42 -0.3	23:43 0.9		Tu	12	1:10 1.0	6:03 0.3	12:44 1.8	19:03 0.0
	F	13	4:38 0.1	11:10 1.6	17:54 -0.3	23:43 0.9		S	13	4:34 0.8	5:10 0.3	11:52 1.5	23:43 0.9		W	13	2:06 1.1	7:20 0.3	13:54 1.1	20:00 0.1
	S	14	4:49 0.8	5:26 0.2	12:08 1.5	18:58 -0.2		M	14	1:40 0.9	6:14 0.3	18:08 1.4	19:41 0.0		Th	14	3:02 1.1	8:47 0.3	15:10 1.0	20:54 0.2
	S	15	2:00 0.7	6:24 0.3	13:18 1.4	20:11 0.0		Tu	15	2:48 0.9	7:34 0.4	14:22 1.2	20:49 0.1		E	F	15	3:54 1.2	10:12 0.3	16:28 0.9
A	M	16	3:18 0.7	7:36 0.4	14:43 1.8	21:36 0.1	E	W	16	3:52 1.0	9:12 0.3	15:40 1.1	21:56 0.2	A	S	16	4:42 1.3	11:18 0.2	17:31 0.9	22:30 0.4
	Tu	17	4:29 0.8	9:18 0.4	16:05 1.3	22:48 0.1		Th	17	4:43 1.1	10:37 0.2	16:55 1.1	22:50 0.2		S	17	5:26 1.3	12:10 0.0	18:26 0.8	23:06 0.4
	W	18	5:24 1.0	10:48 0.3	17:15 1.3	23:48 0.1		F	18	5:27 1.2	11:40 0.1	17:58 1.1	23:34 0.2		M	18	6:05 1.4	12:52 -0.1	19:16 0.8	23:47 0.4
	Th	19	6:10 1.1	11:50 0.2	18:14 1.3	23:48 0.1		S	19	6:05 1.3	12:28 0.0	18:48 1.1	23:48 0.2		Tu	19	6:40 1.5	13:30 -0.2	19:58 0.8	23:47 0.4
	F	20	6:27 0.1	6:45 1.2	12:40 0.0	19:06 1.3		S	20	6:10 0.3	6:40 1.4	13:08 -0.1	19:35 1.1		W	20	7:13 0.4	7:13 1.5	13:58 -0.2	20:38 0.8
N	S	21	1:00 0.1	7:17 1.3	13:25 -0.1	19:50 1.3	A	M	21	6:40 0.3	7:15 1.5	13:42 -0.2	20:15 1.0	N	Th	21	6:58 0.4	7:46 1.6	14:32 -0.3	21:14 0.8
	S	22	1:27 0.1	7:48 1.4	13:59 -0.2	20:31 1.2		Tu	22	1:07 0.8	7:45 1.5	14:16 -0.2	20:54 0.9		F	22	1:36 0.3	8:18 1.6	15:04 -0.3	21:50 0.7
	M	23	1:55 0.1	8:19 1.4	14:30 -0.2	21:09 1.1		W	23	1:36 0.8	8:14 1.5	14:47 -0.3	21:30 0.9		S	23	2:14 0.8	8:51 1.6	15:40 -0.3	22:30 0.7
	Tu	24	2:19 0.2	8:47 1.5	15:04 -0.2	21:48 1.0		Th	24	2:05 0.8	8:40 1.5	15:23 -0.3	22:10 0.8		S	24	2:55 0.8	9:26 1.6	16:18 -0.3	23:07 0.8
	W	25	2:44 0.2	9:15 1.5	15:38 -0.2	22:25 0.9		F	25	2:38 0.3	9:10 1.5	15:56 -0.3	22:50 0.8		M	25	3:40 0.2	10:05 1.5	16:54 -0.2	23:41 0.8
N	Th	26	3:12 0.2	9:38 1.5	16:14 -0.2	23:02 0.8	D	S	26	3:14 0.8	9:40 1.5	16:35 -0.2	23:31 0.7	D	Tu	26	4:27 0.2	10:50 1.4	17:34 -0.1	23:41 0.8
	F	27	3:43 0.8	10:05 1.4	16:52 -0.2	23:43 0.7		S	27	3:50 0.3	10:12 1.4	17:16 -0.2	23:43 0.7		W	27	5:22 0.9	5:24 0.2	11:42 1.3	18:20 0.0
	S	28	4:16 0.8	10:34 1.4	17:35 -0.1	23:43 0.7		M	28	4:14 0.7	4:38 0.3	10:55 1.4	18:00 -0.1		Th	28	1:05 1.0	6:28 0.2	12:42 1.1	19:10 0.1
	S	29	4:32 0.6	4:55 0.4	11:11 1.3	18:25 0.0		Tu	29	1:02 0.7	5:32 0.3	11:48 1.3	18:49 0.0		F	29	1:50 1.1	7:39 0.2	14:00 1.0	19:56 0.2
	M	30	1:35 0.7	5:47 0.4	12:05 1.2	19:20 0.0		W	30	1:56 0.8	6:40 0.4	13:02 1.2	19:45 0.1		S	30	2:46 1.2	8:58 0.1	15:30 0.9	20:45 0.2
							D	Th	31	2:45 0.9	8:00 0.3	14:29 1.1	20:46 0.1							

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The time used is Central Standard, 90th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.									
Moon.	Day of—		Time and Height						Moon.
	W.	Mo.							
S	1		8:42	10:04	16:57	21:37	P	W	1
			1.3	0.0	0.9	0.3			
M	2		4:38	11:16	18:00	22:32	S	Th	2
			1.5	-0.2	0.8	0.3			
Tu	3		5:32	12:20	18:58	23:28	F	3	
			1.6	-0.3	0.8	0.2			
P	W	4	6:24	13:16	19:50		W	4	
			1.8	-0.4					
S	Th	5	0:23	7:15	14:06	20:35	S	Th	5
			0.2	1.9	-0.5	0.9			
F	6		1:15	8:06	14:52	21:24	M	6	
			0.2	1.9	-0.5	0.9			
S	7		2:17	8:54	15:38		Tu	7	
			0.1	1.9	-0.5	1.0			
S	8		3:00	9:44	16:19	22:55	E	W	8
			0.1	1.8	-0.4	1.0			
M	9		3:55	10:34	17:00	23:43	Th	9	
			0.1	1.6	-0.3	1.1			
Tu	10		4:49	11:24	17:40		F	10	
			0.2	1.4	-0.1				
W	11		0:28	5:48	12:18	18:26	C	S	11
			1.1	0.2	1.2	0.0			
E	Th	12	1:17	6:38	13:19	19:09	A	S	12
			1.2	0.2	1.0	0.2			
C	F	13	2:08	7:28	14:24	20:00	M	13	
			1.2	0.3	0.9	0.3			
S	14		3:00	8:25	15:31	20:30	Tu	14	
			1.2	0.3	0.8	0.3			
S	15		3:52	9:18	16:33	21:17	W	15	
			1.2	0.2	0.7	0.4			
A	M	16	4:42	10:12	17:35	22:05	N	Th	16
			1.2	0.1	0.7	0.4			
Tu	17		5:29	11:06	18:36	22:56	F	17	
			1.4	0.0	0.7	0.4			
W	18		6:10	12:06	19:38	23:44	S	18	
			1.4	-0.1	0.7	0.4			
N	Th	19	6:48	13:09	20:16		S	19	
			1.5	-0.2	0.7				
F	20		0:30	7:26	14:10	20:50	M	20	
			0.4	1.5	-0.3	0.8			
S	21		1:15	8:02	14:44	21:23	Tu	21	
			0.3	1.6	-0.3	0.9			
S	22		2:00	8:40	15:20	21:58	W	22	
			0.2	1.6	-0.3	0.9			
M	23		2:45	9:20	15:52	22:30	E	Th	23
			0.2	1.6	-0.3	1.0			
Tu	24		3:30	10:02	16:28	23:00	F	24	
			0.1	1.5	-0.2	1.0			
W	25		4:20	10:47	17:10	23:35	S	25	
			0.1	1.4	-0.1	1.1			
N	Th	26	5:15	11:34	17:50		D	S	26
			0.0	1.2	0.0				
F	27		0:15	6:12	12:28	18:28	P	M	27
			1.2	0.0	1.1	0.1			
D	S	28	1:04	7:18	13:40	19:10	Tu	28	
			1.2	0.0	0.9	0.2			
S	29		2:00	8:28	15:15	19:58	S	W	29
			1.3	0.0	0.9	0.3			
M	30		3:05	9:48	16:40	20:56	Th	30	
			1.4	0.0	0.8	0.3			
Tu	31		4:11	11:10	17:50	22:02	F	31	
			1.5	-0.1	0.7	0.3			

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●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

O E	M	1	1:18 0.0	7:45 1.4	18:46 0.0	20:04 1.3	Th	1	2:20 -0.3	9:00 1.1	14:01 0.2	20:32 1.5	A	S	1	2:41 -0.3	9:22 0.9	18:58 0.3	20:33 1.6	
	Tu	2	1:58 -0.1	8:30 1.4	14:16 0.0	20:35 1.4	F	2	2:56 -0.3	9:37 1.0	14:30 0.2	21:00 1.5	S	2	3:15 -0.3	10:06 0.9	14:26 0.3	21:00 1.5		
	W	3	2:38 -0.2	9:12 1.4	14:45 0.0	21:07 1.4	S	3	3:31 -0.3	10:08 0.9	14:58 0.3	21:29 1.5	N	M	3	3:49 -0.3	10:42 0.8	15:00 0.3	21:29 1.5	
A	Th	4	3:16 -0.2	9:54 1.2	15:11 0.1	21:39 1.4	A	S	4	4:06 -0.2	11:00 0.8	15:30 0.3	21:55 1.4	Tu	4	4:24 -0.2	11:25 0.8	15:40 0.3	22:00 1.4	
	F	5	3:51 -0.2	10:33 1.1	15:38 0.2	22:06 1.4	M	5	4:44 -0.2	11:43 0.8	16:01 0.3	22:20 1.4	W	5	5:01 -0.2	12:02 0.8	16:23 0.3	22:36 1.3		
	S	6	4:18 -0.2	11:12 0.9	16:08 0.2	22:34 1.4	N	Tu	6	5:24 -0.1	12:31 0.7	16:40 0.4	22:54 1.3	Th	6	5:42 -0.1	12:43 0.8	17:16 0.4	23:24 1.2	
C	S	7	5:06 -0.1	11:56 0.8	16:38 0.3	23:00 1.3	W	7	6:09 0.0	13:25 0.6	17:50 0.5	23:36 1.2	F	7	6:25 0.0	13:28 0.8	18:20 0.4			
	M	8	6:50 0.0	12:50 0.7	17:13 0.4	23:31 1.2	Th	8	6:58 0.0	14:33 0.7	18:35 0.5		C	S	8	6:21 1.1	7:19 0.0	14:16 0.9	19:31 0.3	
	Tu	9	6:40 0.1	14:07 0.6	17:58 0.4		C	F	9	6:43 1.1	7:54 0.1	15:27 0.8	19:53 0.5	S	9	1:45 1.0	8:11 0.1	15:05 1.0	20:50 0.2	
E	W	10	0:14 1.2	7:36 0.1	15:25 0.6	18:50 0.5	S	10	2:22 1.1	9:00 0.1	16:11 0.9	21:16 0.4	M	10	3:15 1.0	9:08 0.2	15:54 1.1	22:04 0.1		
	Th	11	1:31 1.1	8:43 0.2	16:34 0.7	20:10 0.6	S	11	3:54 1.0	10:00 0.2	16:50 1.0	22:30 0.2	Tu	11	4:40 1.0	9:53 0.2	16:43 1.3	23:00 -0.1		
	F	12	3:18 1.1	9:50 0.2	17:18 0.8	21:38 0.6	M	12	5:05 1.1	10:56 0.2	17:27 1.2	23:32 0.0	W	12	5:51 1.0	10:43 0.2	17:30 1.5			
P	S	13	4:30 1.2	10:47 0.1	17:50 0.9	22:51 0.3	E	Tu	13	6:08 1.2	11:35 0.1	18:05 1.4		Th	13	6:01 -0.3	6:50 1.1	11:32 0.2	14:17 1.7	
	S	14	5:34 1.2	11:45 0.1	18:19 1.0	23:51 0.1	W	14	0:20 -0.2	7:08 1.2	12:18 0.1	18:45 1.6	F	14	0:56 -0.4	7:40 1.1	12:20 0.2	19:08 1.8		
	M	15	6:29 1.3	12:26 0.0	18:49 1.2		Th	15	1:08 -0.4	7:52 1.2	12:58 0.1	19:25 1.7	P	S	15	1:50 -0.5	8:29 1.1	13:10 0.1	19:50 1.9	
D	Tu	16	0:41 -0.1	7:18 1.4	13:08 0.0	19:20 1.3	P	F	16	1:58 -0.5	8:41 1.1	13:40 0.1	20:08 1.8	S	S	16	2:37 -0.6	9:18 1.0	13:58 0.1	20:39 1.9
	W	17	1:28 -0.3	8:08 1.4	13:38 0.0	19:56 1.5	S	17	2:46 -0.6	9:29 1.0	14:21 0.1	20:50 1.9	M	17	3:25 -0.6	10:05 0.9	14:48 0.1	21:26 1.9		
	Th	18	2:11 -0.4	8:50 1.3	14:15 0.0	20:31 1.6	S	18	3:35 -0.6	10:19 1.0	15:05 0.1	21:35 1.8	Tu	18	4:14 -0.5	10:54 0.9	15:41 0.1	22:19 1.8		
S	F	19	2:55 -0.5	9:36 1.3	14:53 0.0	21:10 1.7	S	M	19	4:25 -0.5	11:11 0.9	15:52 0.2	22:25 1.8	W	19	5:00 -0.4	11:45 1.0	16:26 0.2	23:15 1.6	
	S	20	3:43 -0.5	10:25 1.1	15:30 0.1	21:58 1.7	Tu	20	5:15 -0.4	12:08 0.9	16:45 0.2	23:21 1.6	Th	20	5:46 -0.2	12:38 1.0	17:39 0.2			
	S	21	4:33 -0.5	11:16 1.0	16:12 0.1	22:37 1.7	W	21	6:10 -0.2	13:10 0.9	17:46 0.3		F	21	6:15 1.4	6:35 -0.1	13:31 1.1	18:50 0.2		
E	M	22	5:27 -0.4	12:19 0.9	17:00 0.2	23:30 1.6	D	Th	22	0:28 1.4	7:07 -0.1	14:15 0.9	19:00 0.3	D	S	22	1:22 1.2	7:30 0.1	14:27 1.1	20:16 0.2
	Tu	23	6:25 -0.2	13:29 0.7	17:55 0.3		F	23	1:45 1.3	8:06 0.0	15:15 1.0	20:31 0.3	E	S	23	2:41 1.0	8:22 0.2	15:21 1.2	21:55 0.2	
	W	24	0:37 1.5	7:31 -0.1	14:42 0.8	19:03 0.4	S	24	3:08 1.1	9:15 0.1	16:10 1.1	22:01 0.2	M	24	4:08 0.9	9:11 0.3	16:15 1.2	22:48 0.1		
O	Th	25	2:00 1.3	8:45 0.0	15:55 0.8	20:32 0.4	E	S	25	4:29 1.1	10:13 0.2	16:58 1.2	23:14 0.1	Tu	25	5:12 0.9	10:00 0.3	17:05 1.4	23:54 0.0	
	F	26	3:30 1.3	9:58 0.1	16:53 1.0	22:07 0.3	M	26	5:36 1.1	11:01 0.3	17:41 1.3		W	26	6:13 0.8	10:44 0.4	17:48 1.4			
	S	27	4:46 1.2	11:05 0.1	17:40 1.1	23:24 0.2	Tu	27	6:08 0.0	6:33 1.1	11:42 0.3	18:23 1.4	Th	27	6:44 -0.1	7:06 0.8	11:27 0.4	18:28 1.5		
E	S	28	5:53 1.2	11:55 0.1	18:19 1.2		W	28	6:55 -0.1	7:21 1.0	12:16 0.3	18:58 1.5	A	F	28	1:21 -0.2	7:52 0.8	12:08 0.4	19:35 1.5	
	M	29	0:20 0.0	6:49 1.3	12:32 0.1	18:55 1.3	Th	29	1:33 -0.2	8:06 1.0	12:49 0.3	19:31 1.5	S	29	1:55 -0.2	8:30 0.8	12:45 0.4	19:39 1.5		
	Tu	30	1:05 -0.1	7:38 1.3	13:05 0.1	19:30 1.4	O	F	30	2:08 -0.3	8:46 0.9	13:20 0.3	20:03 1.6	N	S	30	2:25 -0.3	9:07 0.8	13:24 0.4	20:12 1.6
	W	31	1:44 -0.2	8:20 1.2	13:35 0.2	20:01 1.5							M	31	2:57 -0.3	9:44 0.8	14:04 0.3	20:44 1.6		

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JANUARY.												MARCH.												
Moon.	Day of—		Time and Height									Moon.	Day of—		Time and Height of High and									
	W.	Mo.	Low Wa										W.	Mo.	Low Water.									
D/E	M	1	14:42	22:02			D	Th	1	4:41	12:00	16:08	21:44	A	Th	1	2:30	15:00	20:00					
			0.4	1.0						0.4	0.7	0.6	0.8				0.4	0.8	0.6	0.8				
A	Tu	2	5:51	10:37	16:34	22:27		F	2	5:13	13:47			D	F	2	3:12	11:00	17:00	20:06				
			0.5	0.6	0.5	1.0			0.3	0.8						0.3	0.8	0.7	0.8					
N	W	3	6:06	12:35	16:29	22:55		S	3	5:55	15:10				S	3	4:00	12:40						
			0.4	0.7	0.5	0.9			0.2	0.9						0.2	0.9							
C	Th	4	6:32	14:10	17:37	23:15		S	4	6:37	16:04				S	4	4:50	14:10						
			0.3	0.8	0.7	0.9			0.0	1.0						0.1	1.0							
O	F	5	7:00	15:22				M	5	7:21	16:46			N	M	5	5:00	15:10						
			0.2	0.9					-0.1	1.1						0.0	1.0							
P	S	6	7:27	16:30			N	Tu	6	8:06	17:25				Tu	6	5:45	15:50						
			0.1	1.0					-0.2	1.1						0.0	1.1							
Q	S	7	7:57	17:06				W	7	8:55	17:55				W	7	7:43	16:18						
			0.0	1.1					-0.2	1.2						-0.1	1.1							
R	M	8	8:33	17:52				Th	8	9:32	18:18				Th	8	8:39	16:40	21:20					
			-0.1	1.2					-0.2	1.2						-0.1	1.0	0.8						
S	Tu	9	9:11	18:30			O	F	9	10:32	18:38				F	9	1:48	9:32	17:00	21:58				
			-0.2	1.2					-0.2	1.1	0.8					0.9	-0.1	0.9	0.7					
T	W	10	9:54	19:02				S	10	3:32	11:00	18:56		O	S	10	3:05	10:25	17:22	22:37				
			-0.3	1.3					1.0	-0.1	1.0					1.0	0.0	0.9	0.6					
U	Th	11	10:38	19:30				S	11	0:05	11:00	12:09	19:15	E	S	11	4:16	11:15	17:45	23:19				
			-0.3	1.2					0.7	1.0	0.0	0.9				1.0	0.1	0.8	0.5					
V	F	12	11:26	19:58			E	M	12	0:50	0:08	12:59	19:36	P	M	12	5:24	12:06	18:16					
			-0.3	1.2					0.6	1.0	0.2	0.9				1.0	0.2	0.8						
W	S	13	12:10	20:18			P	Tu	13	1:38	7:30	13:50	20:00		Tu	13	0:02	6:28	12:57	18:36				
			-0.2	1.1					0.5	0.9	0.8	0.9				0.4	1.0	0.4	0.8					
X	S	14	1:44	5:14	13:00	20:40		W	14	2:14	8:45	14:50	20:27		W	14	0:49	7:45	14:04	18:53				
			0.8	0.9	-0.1	1.0			0.4	0.9	0.5	0.8				0.3	1.0	0.6	0.8					
Y	M	15	2:32	6:50	13:54	21:00	C	Th	15	3:10	10:22	15:49	20:50		Th	15	1:35	9:05	15:54	19:15				
			0.6	0.8	0.1	1.0			0.2	0.9	0.6	0.9				0.2	1.0	0.6	0.8					
Z	Tu	16	3:18	8:38	14:53	21:17		F	16	4:11	12:23	18:00	21:10		F	16	2:35	10:39	16:15	19:38				
			0.6	0.8	0.3	0.9			0.1	0.9	0.8	0.9				0.1	1.0	0.7	0.8					
AA	W	17	3:52	10:02	16:00	21:51		S	17	5:17	14:22			C	S	17	3:39	12:25						
			0.4	0.8	0.5	0.9			0.0	1.0						0.0	1.0							
AB	Th	18	4:47	11:59	17:00	22:09	S	S	18	6:15	15:35			S	S	18	4:46	13:53						
			0.2	0.8	0.7	0.9			-0.1	1.0						0.0	1.0							
AC	F	19	5:44	14:00				M	19	7:20	16:25				M	19	5:55	14:50						
			0.0	0.9					-0.1	1.1						0.0	1.0							
AD	S	20	6:40	15:40				Tu	20	8:17	17:07				Tu	20	7:00	15:32						
			-0.1	1.0					-0.1	1.1						0.1	1.0							
AE	S	21	7:35	16:43				W	21	9:08	17:40				W	21	8:00	16:05	21:42					
			-0.2	1.1					-0.1	1.1						0.1	1.0	0.7						
AF	M	22	8:27	17:35				Th	22	9:55	18:04				Th	22	1:40	8:52	16:27	22:08				
			-0.2	1.2					0.0	1.0						0.3	0.1	1.0	0.6					
AG	Tu	23	9:21	18:16			●	F	23	10:37	18:21			●	F	23	2:53	9:40	16:40	22:37				
			-0.2	1.2					0.0	1.0						0.3	0.2	0.9	0.6					
AH	W	24	10:05	18:54				S	24	0:00	4:07	11:15	18:37	●	S	24	3:56	10:22	17:00	23:05				
			-0.2	1.2					0.7	0.8	0.1	0.9				0.3	0.3	0.8	0.5					
AI	Th	25	10:49	19:20			E	S	25	0:33	5:09	11:53	18:50	E	S	25	4:53	11:05	17:20	23:31				
			-0.2	1.1					0.6	0.8	0.2	0.9				0.3	0.4	0.8	0.5					
AJ	F	26	11:30	19:40				M	26	1:07	6:15	12:35	19:08		M	26	5:43	11:55	17:50	23:57				
			-0.1	1.1					0.6	0.8	0.3	0.9				0.3	0.4	0.8	0.4					
AK	S	27	12:10	20:00				Tu	27	1:22	7:25	13:30	19:41		Tu	27	6:20	12:40	18:00					
			0.0	1.0					0.5	0.8	0.5	0.8				0.9	0.5	0.7						
AL	S	28	12:48	20:25				W	28	1:58	8:09	14:15	19:55	A	W	28	0:16	7:15	13:32	17:58				
			0.1	1.0					0.5	0.8	0.6	0.8				0.3	0.9	0.6	0.7					
AM	M	29	13:32	20:45											Th	29	0:45	8:18						
			0.3	1.0												0.3	0.9							
AN	Tu	30	14:20	21:02											F	30	1:20							
			0.4	0.9												0.2	1.0							
AO	W	31	4:03	10:22	15:04	21:28									S	31	2:06	10:38						
			0.5	0.6	0.5	0.9										0.1	1.0							

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The time used is Central Standard, 90th meridian W; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☽, 1st quar.; ☾, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

gh and									
N	S	1	2:56	11:45					
	M	2	3:59	12:50					
	Tu	3	5:03	13:37					
	W	4	6:10	14:14	19:50	23:35			
	Th	5	7:17	14:45	20:10				
	F	6	1:10	8:17	15:11	20:43			
	S	7	2:30	9:19	15:41	21:20			
E	S	8	3:34	10:15	16:10	22:00			
O	M	9	4:40	11:14	16:32	22:48			
P	Tu	10	5:49	12:18	16:50	23:25			
	W	11	7:00	13:10	17:08				
	Th	12	8:16	8:08					
	F	13	1:07	9:21					
S	S	14	2:04	10:45					
C	S	15	3:06	11:56					
	M	16	4:12	12:53					
	Tu	17	5:19	13:35					
	W	18	6:24	14:08					
	Th	19	7:30	14:31	21:08				
	F	20	2:34	8:33	14:58	21:10			
E	S	21	3:25	9:39	15:25	21:45			
	S	22	4:12	10:25	15:49	22:02			
	M	23	5:05	11:13	15:55	22:25			
	Tu	24	5:55	12:50					
A	W	25	6:45	23:20					
	Th	26	7:34	23:58					
	F	27	8:28						
	S	28	9:35	9:30					
N	S	29	1:23	10:15					
	M	30	2:17	11:05					
			0.0	1.1					
D	Tu	1	3:13	11:49					
	W		4:24	12:25					
	Th	3	5:25	13:55	19:02				
		4	6:14	6:42	13:30	19:30			
E	S	5	1:41	7:53	14:03	20:11			
	S	6	2:47	9:10	14:20	20:45			
	M	7	3:40	10:12	14:40	21:27			
	Tu	8	4:08	22:15					
	W	9	5:12	23:04					
	Th	10	6:20	23:54					
	S	11	7:25						
	S	12	8:25	9:27					
	S	13	9:40	10:23					
	M	14	10:40	11:07					
	Tu	15	11:40	11:48					
	W	16	12:40	12:20					
	Th	17	13:40	13:15	20:12				
	S	18	14:40	14:10	20:40				
	S	19	15:40	15:10	21:05				
	S	20	16:40	16:10	21:30				
	M	21	17:40	17:10	21:55				
	Tu	22	18:40	18:10	22:20				
	W	23	19:40	19:10	22:45				
	Th	24	20:40	20:10	23:10				
	F	25	21:40	21:10	23:35				
N	S	26	22:40	22:10	24:00				
	S	27	23:40	23:10	24:25				
	M	28	24:40	24:10	24:50				
	Tu	29	25:40	25:10	25:25				
			0.0	1.1					
	W	30	2:50	10:53					
			0.0	1.1					
D	Th	31	3:55	11:16	17:45	22:54			
			0.2	1.0	0.6	0.7			
E	F	1	5:10	11:36	18:06				
			0.3	0.9	0.4				
	S	2	6:20	6:30	12:15	18:50			
			0.8	0.5	0.9	0.2			
	S	3	1:50	7:40	12:34	19:25			
			0.9	0.6	0.6	0.1			
	M	4	3:15	20:24					
			1.0	-0.1					
P	Tu	5	4:29	21:12					
			1.1	-0.2					
O	W	6	5:38	22:03					
			1.2	-0.3					
	Th	7	6:42	22:52					
			1.3	-0.3					
S	F	8	7:46	23:40					
			1.3	-0.3					
	S	9	8:50						
			1.3						
	S	10	9:50	9:10					
			-0.2	1.2					
	M	11	1:20	9:50					
			-0.1	1.2					
	Tu	12	2:26	10:20					
			0.0	1.1					
C	W	13	2:57	10:50					
			0.2	1.1					
	Th	14	4:00	11:15	18:44				
			0.4	1.0	0.4				
E	F	15	5:05	5:08	11:35	19:07			
			0.6	0.5	0.9	0.4			
	S	16	1:50	6:20	12:07	19:37			
			0.7	0.6	0.9	0.4			
	S	17	3:15	20:04					
			0.8	0.2					
A	M	18	4:20	20:30					
			0.9	0.1					
	Tu	19	5:11	20:55					
			1.0	0.0					
	W	20	6:00	21:22					
			1.1	-0.1					
	Th	21	6:40	21:55					
			1.2	-0.2					
N	F	22	7:15	22:22					
			1.2	-0.3					
		23	7:45	23:14					
			1.2	-0.3					
	S	24	8:15						
			1.2						
	M	25	9:00	8:45					
			-0.2	1.2					
	Tu	26	9:45	9:14					
			-0.2	1.1					
	W	27	1:40	9:34					
			0.0	1.1					
	Th	28	2:20	9:55	16:17	21:16			
			0.1	1.0	0.6	0.7			
	F	29	3:35	10:11	16:48	22:55			
			0.3	1.0	0.4	0.8			
	S	30	4:40	10:45	17:36				
			0.6	0.9	0.2				

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The time used is Central Standard, 90th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator. A, P, moon in apogee or perigee

JULY.				AUGUST.			
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.		Moon.	Day of— W. Mo.	Time and Height of High and Low Water.	
P C	S 1	0:40	18:32	P C	W 1	4:28	20:06
		0.9	0.0			1.1	-0.2
	M 2	2:25	19:22		Th 2	5:14	21:00
		1.0	-0.2			1.1	-0.2
	Tu 3	3:56	20:14		F 3	5:55	21:46
		1.1	-0.3			1.1	-0.2
	W 4	5:10	21:05		S 4	6:30	22:37
		1.2	-0.3			1.1	-0.1
	Th 5	6:10	21:56		S 5	7:00	23:20
		1.2	-0.3			1.0	0.0
	F 6	6:54	22:44		M 6	7:30	
E C		1.2	-0.3			1.0	
	S 7	7:35	23:30		Tu 7	8:00	7:40
		1.2	-0.2			0.1	1.0
	S 8	8:10			W 8	8:40	8:00 14:30 19:00
		1.2				0.2	0.9 0.7
	M 9	9:15	8:33		Th 9	1:30	8:30 14:57 20:30
		-0.1	1.1			0.4	0.9 0.5 0.7
	Tu 10	9:58	9:00		F 10	2:20	8:39 15:36 22:08
		0.1	1.1			0.5	0.9 0.4 0.7
	W 11	1:40	9:28		S 11	2:55	9:10 16:21 23:46
		0.2	1.0			0.6	0.9 0.3 0.8
A C	Th 12	2:32	9:52 17:17 22:24	A C	S 12	3:35	9:27 17:05
		0.4	1.0 0.5 0.6			0.7	0.9 0.3
	F 13	3:20	10:08 17:42		M 13	1:44	4:40 9:25 17:40
		0.5	0.9 0.4			0.9	0.8 0.9 0.2
	S 14	4:24	4:10 10:36 18:18		Tu 14	3:05	18:25
		0.7	0.6 0.9 0.3			0.9	0.1
	S 15	2:08	5:50 10:52 18:48		W 15	3:55	19:08
		0.8	0.7 0.9 0.2			1.0	0.0
	M 16	3:26	5:55 10:55 19:18		Th 16	4:34	19:54
		0.9	0.8 0.9 0.1			1.1	-0.1
	Tu 17	4:28	19:50		F 17	5:09	20:39
N		1.0	0.0			1.1	-0.1
	W 18	5:14	20:22	N	S 18	5:38	21:28
		1.1	-0.1			1.1	-0.1
	Th 19	5:50	20:58		S 19	5:57	22:16
		1.1	-0.2			1.0	-0.1
	F 20	6:27	21:40		M 20	6:10	23:00
		1.2	-0.2			1.0	0.0
	S 21	6:56	22:25		Tu 21	6:32	11:35 16:28 23:30
		1.2	-0.2			0.9	0.6 1.0 0.1
	S 22	7:18	23:06		W 22	6:50	12:20 17:41
		1.2	-0.2			0.9	0.6 1.0
	M 23	7:36	23:52	E C	Th 23	0:27	7:08 13:05 19:10
D		1.1	-0.1			0.2	0.8 0.4 1.0
	Tu 24	8:02			M 24	1:25	7:38 13:48 20:14
		1.6				0.4	0.8 0.8 1.0
	W 25	0:40	8:18 13:56 18:20		S 25	2:20	7:58 14:25 21:46
		0.0	1.0 0.6 0.8			0.6	0.9 0.2 1.0
	Th 26	1:30	8:36 14:42 20:00		S 26	15:35	23:36
		0.2	0.9 0.5 0.8			0.1	1.0
	F 27	2:25	8:50 15:15 21:25		M 27	16:40	
		0.4	0.9 0.4 0.8			0.0	
	S 28	3:30	9:22 16:11 23:32		Tu 28	1:40	17:47
		0.6	0.9 0.2 0.8			1.0	-0.1
	S 29	4:22	9:41 17:10	D C	W 29	3:02	18:32
M		0.7	1.0 0.0			1.0	-0.1
	M 30	1:18	6:35 10:00 18:10		Th 30	3:56	19:53
		1.0	0.9 1.0 -0.1			1.0	-0.1
	Tu 31	3:11	19:10		F 31	4:33	20:50
		1.0	-0.2			1.0	0.0

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OCTOBER.					NOVEMBER.					DECEMBER.							
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
E	M 1	4:08	10:05	15:50	22:10	A	Th 1	3:20	10:12	17:55		N	S 1	10:06	19:15		
		0.8	0.5	0.9	0.3			0.7	0.2	1.0				—0.1	1.2		
E	Tu 2	4:30	10:38	16:46	23:00	A	F 2	10:40	18:47			N	S 2	10:40	19:49		
		0.8	0.5	0.9	0.4			0.1	1.1					—0.1	1.2		
E	W 3	5:02	11:10	17:26	23:47	A	S 3	11:10	19:38			N	M 3	11:14	20:27		
		0.8	0.4	0.9	0.5			0.0	1.1					—0.2	1.2		
E	Th 4	5:15	11:29	18:22		A	S 4	11:40	20:30			N	Tu 4	11:52	21:05		
		0.7	0.3	0.9				0.0	1.1					—0.2	1.2		
E	F 5	0:36	5:20	11:55	19:18	N	M 5	12:20	21:20			W	5	12:38	21:37		
		0.6	0.7	0.2	0.9			—0.1	1.1					—0.1	1.2		
A	S 6	1:28	5:23	12:26	20:18	N	Tu 6	13:05	22:06			Th	6	13:28	22:06		
		0.6	0.7	0.2	1.0			0.0	1.1					0.0	1.1		
A	S 7	2:30	5:25	13:04	21:22	W	7	13:58	22:50			F	7	14:22	22:31		
		0.7	0.8	0.1	1.0			0.0	1.1					0.1	1.0		
N	M 8	13:44	22:30			C	Th 8	14:50	23:35			C	S 8	5:15	8:00	15:25	22:55
		0.1	1.0					0.1	1.0					0.6	0.7	0.3	1.0
C	Tu 9	14:40	23:32			C	F 9	15:52				E	S 9	5:24	10:18	16:36	23:10
		0.1	1.0					0.1						0.5	0.7	0.4	0.9
C	W 10	15:30				S	10	0:00	6:40	9:42	17:02	E	M 10	5:46	11:56	17:54	23:45
		0.1						1.0	0.6	0.7	0.2			0.3	0.8	0.6	0.9
C	Th 11	0:27	16:35			S	11	0:28	6:50	11:48	18:18	Tu	11	6:30	13:25	19:03	
		1.0	0.1					0.9	0.5	0.8	0.4			0.2	0.9	0.7	
F	12	1:10	17:40			M	12	0:50	7:05	13:18	19:30	W	12	0:05	7:15	14:52	20:10
		1.0	0.1					0.9	0.4	0.9	0.5			0.9	0.0	1.0	0.8
S	13	1:50	7:45	11:16	18:48	E	Tu 13	1:30	7:45	14:25	20:42	Th	13	0:25	8:05	16:10	
		0.9	0.7	0.8	0.2			0.8	0.2	1.0	0.6			0.9	—0.2	1.1	
S	14	2:15	8:00	12:55	19:52	W	14	1:50	8:20	15:40	21:45	F	14	8:50	17:22		
		0.9	0.6	0.9	0.2			0.8	0.1	1.1	0.7			—0.3	1.2		
M	15	2:40	8:26	14:14	20:50	Th	15	2:05	9:05	16:50	22:45	P	S 15	9:40	18:26		
		0.8	0.5	1.0	0.3			0.8	—0.1	1.2	0.7			—0.4	1.2		
E	Tu 16	3:12	9:01	15:15	21:50	P	F 16	2:25	9:53	17:58	23:45	S	S 16	10:30	19:20		
		0.8	0.4	1.0	0.4			0.8	—0.2	1.8	0.8			—0.4	1.3		
●	W 17	3:42	9:40	16:22	22:55	S	17	2:45	10:40	19:05		M	17	11:18	20:10		
		0.8	0.2	1.1	0.5			0.9	—0.3	1.3				—0.3	1.3		
P	Th 18	3:56	10:45	17:30	23:55	S	18	11:30	20:12			Tu	18	12:10	20:52		
		0.7	0.1	1.2	0.6			—0.3	1.8					—0.2	1.2		
P	F 19	4:12	10:57	18:38		S	M 19	12:24	21:10			W	19	12:58	21:23		
		0.8	0.0	1.2				—0.2	1.2					—0.1	1.2		
S	20	0:50	4:30	11:47	19:48	Tu	20	13:15	22:05			Th	20	13:45	21:57		
		0.7	0.8	—0.1	1.2			—0.1	1.2					0.1	1.1		
S	21	12:40	21:02			W	21	14:10	22:46			F	21	5:00	7:26	14:40	22:25
		—0.1	1.2					0.0	1.1					0.6	0.7	0.2	1.0
S	M 22	13:36	22:16			D	Th 22	15:05	23:25			D	S 22	5:45	9:38	15:40	22:45
		—0.1	1.1					0.1	1.0					0.5	0.6	0.4	1.0
D	Tu 23	14:35	23:25			F	23	6:35	9:10	16:05	23:55	E	S 23	6:10	11:58	16:44	23:10
		0.0	1.1					0.6	0.7	0.3	1.0			0.4	0.7	0.6	0.9
D	W 24	15:40				S	24	7:05	11:44	17:28		M	24	6:40	13:45	17:48	23:40
		0.0						0.5	0.6	0.4				0.3	0.8	0.7	0.9
E	Th 25	0:20	16:50			E	S 25	0:22	7:23	13:30	18:42	Tu	25	7:18	15:10	19:05	23:58
		1.0	0.1					0.9	0.4	0.7	0.6			0.2	0.9	0.8	0.9
F	26	1:05	7:38	10:50	17:56	M	26	0:46	7:50	14:50	19:54	W	26	7:50	16:20		
		1.0	0.6	0.7	0.3			0.9	0.3	0.8	0.6			0.1	1.0		
S	27	1:35	8:05	12:52	19:04	Tu	27	1:17	8:25	15:56	20:55	Th	27	8:20	17:15		
		0.9	0.6	0.7	0.4			0.8	0.2	0.9	0.7			0.0	1.1		
S	28	2:00	8:34	14:20	20:20	W	28	1:30	8:54	16:54		A	F 28	8:48	18:02		
		0.9	0.5	0.8	0.5			0.8	0.1	1.0				0.0	1.2		
E	M 29	2:34	8:50	15:10	21:17	Th	29	9:15	17:46			S	29	9:15	18:42		
		0.8	0.4	0.9	0.5			0.0	1.1					—0.1	1.2		
C	Tu 30	3:02	9:20	16:10	22:10	O	F 30	9:40	18:32			N	S 30	9:48	19:15		
		0.8	0.3	0.9	0.6			0.0	1.1					—0.2	1.2		
C	W 31	3:14	9:50	17:05	23:00							M	31	10:20	19:46		
		0.7	0.2	1.0	0.6									—0.2	1.2		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 0.6 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Central Standard, 90th meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; Q, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.						
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				
	W. Mo.						W. Mo.						W. Mo.					
	M 1	6:05	11:46	16:45		Th 1	0:55	6:48	12:31	17:46	A	Th 1	5:00	10:52	16:37			
E	Tu 2	0:30	7:09	12:39	17:30	F 2	1:43	7:20	13:13	18:33		F 2	0:15	5:17	11:13	17:15		
D	W 3	1:25	8:12	13:34	18:17	S 3	2:30	7:47	14:10	19:23	D	S 3	0:53	5:40	11:40	17:56		
A	Th 4	2:22	9:15	14:30	19:10	S 4	3:13	8:16	15:10	20:18		S 4	1:25	6:10	12:14	18:42		
	F 5	3:17	10:01	15:27	20:09	M 5	3:55	8:53	16:05	21:16	N	M 5	1:53	6:52	13:13	19:43		
	S 6	4:08	10:28	16:20	21:10	N	Tu 6	4:32	9:38	16:56	22:17		Tu 6	2:15	7:42	14:35	20:33	
	S 7	4:53	10:38	17:11	22:10	W 7	5:07	10:25	17:45	23:15		W 7	2:56	8:32	15:47	21:35		
	M 8	5:31	10:53	17:55	23:09	Th 8	5:43	11:12	18:30			Th 8	3:55	9:35	16:50	22:40		
N	Tu 9	6:05	11:20	18:33	23:57	○	F 9	0:09	6:18	12:00	19:15		F 9	4:53	10:35	17:46	23:40	
C	W 10	6:35	11:58	19:10		S 10	1:00	6:58	12:45	20:00	○	S 10	5:50	11:30	18:43			
	Th 11	0:42	7:00	12:32	19:47	S 11	1:50	7:42	13:32	20:45		S 11	0:36	6:42	12:19	19:34		
	F 12	1:28	7:22	13:10	20:25	E	M 12	2:38	8:28	14:20	21:33	E	M 12	1:28	7:32	13:18	20:25	
	S 13	2:10	7:58	13:50	21:02	P	Tu 13	3:27	9:13	15:09	22:23	P	Tu 13	2:20	8:21	14:10	21:17	
	S 14	2:54	8:32	14:32	21:45	W 14	4:16	10:02	16:00	23:17		W 14	3:07	9:09	15:08	22:09		
	M 15	3:40	9:14	15:16	22:32	Th 15	5:07	10:53	16:54			Th 15	3:55	10:00	15:58	23:03		
E	Tu 16	4:31	10:00	16:05	23:24	○	F 16	0:14	6:00	11:51	17:53		F 16	4:45	10:54	16:55		
C	W 17	5:23	10:52	16:56		S 17	1:16	6:55	13:03	18:57	○	S 17	0:02	5:34	11:53	17:56		
	Th 18	0:21	6:20	11:52	17:53	S 18	2:20	7:54	14:17	20:10	S	S 18	1:02	6:27	12:58	19:04		
	F 19	1:22	7:19	13:00	18:56	S	M 19	3:25	8:55	15:31	21:30		M 19	2:08	7:22	14:07	20:20	
P	S 20	2:28	8:21	14:25	20:06	Tu 20	4:31	9:55	16:40	22:51		Tu 20	3:15	8:22	15:19	21:43		
	S 21	3:34	9:24	15:45	21:23	W 21	5:30	10:50	17:44			W 21	4:15	9:20	16:27	23:07		
S	M 22	4:38	10:22	16:54	22:42	Th 22	0:06	6:23	11:43	18:43		Th 22	5:15	10:25	17:30			
	Tu 23	5:38	11:15	17:56	23:50	●	F 23	1:17	7:12	12:32	19:38		F 23	0:24	6:08	11:23	18:31	
●	W 24	6:35	12:04	18:54		S 24	2:14	7:59	13:16	20:30	●	S 24	1:27	6:57	12:17	19:25		
	Th 25	1:05	7:27	12:52	19:50	E	S 25	3:02	8:42	14:00	21:20	E	S 25	2:13	7:41	13:05	20:17	
	F 26	2:11	8:13	13:34	20:43	M 26	3:42	9:22	14:40	22:07		M 26	2:49	8:23	13:49	21:03		
	S 27	3:10	9:00	14:16	21:33	Tu 27	4:15	10:00	15:20	22:53		Tu 27	3:15	8:59	14:27	21:45		
	S 28	4:00	9:45	14:58	22:25	W 28	4:40	10:29	15:58	23:36	A	W 28	3:30	9:30	15:05	22:23		
E	M 29	4:48	10:25	15:40	23:15							Th 29	3:40	9:57	15:36	22:55		
	Tu 30	5:32	11:10	16:19								F 30	3:50	10:13	16:09	23:22		
	W 31	0:06	6:13	11:53	17:00							S 31	4:06	10:35	16:45	23:30		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.0 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Buenos Ayres Mean Local Civil, for the meridian 58° 22' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	4:38 0.5	11:00 1.8	17:24 0.3	23:40 1.3	D	Tu	1	4:37 0.1	11:20 2.1	17:44 0.4	22:56 1.3	E	F	1	5:47 -0.1	12:55 2.4	19:13 0.4	20:16 0.3
D	M	2	5:15 0.4	11:43 1.9	18:10 0.4	23:55 1.3	W	2	5:23 0.0	12:09 2.2	18:35 0.4	23:46 1.2	E	S	2	0:26 1.2	6:46 -0.1	14:04 2.4	20:16 0.3	
	Tu	3	6:00 0.3	12:38 1.9	19:03 0.4		Th	3	6:14 0.0	13:10 2.2	19:34 0.4		S	3	1:48 1.2	7:51 -0.1	15:13 2.4	21:22 0.3		
	W	4	0:38 1.2	6:52 0.3	13:40 2.0	20:00 0.4	F	4	0:50 1.2	7:12 0.0	14:21 2.2	20:38 0.4	M	4	3:22 1.3	9:04 -0.1	16:24 2.4	22:26 0.2		
	Th	5	1:39 1.2	7:50 0.2	14:54 2.0	21:05 0.4	E	S	5	2:14 1.2	8:17 0.0	15:35 2.3	21:45 0.3	Tu	5	4:44 1.5	10:17 -0.1	17:28 2.3	23:25 0.1	
	F	6	2:56 1.2	8:53 0.1	16:08 2.2	22:10 0.4	S	6	3:49 1.3	9:25 0.0	16:45 2.4	22:50 0.2	P	W	6	5:50 1.8	11:29 -0.2	18:26 2.3		
	S	7	4:20 1.3	9:58 0.0	17:15 2.3	23:12 0.8	M	7	5:05 1.5	10:40 -0.1	17:50 2.4	23:48 0.1	Th	7	0:18 0.0	6:49 2.1	12:36 -0.2	19:22 2.3		
E	S	8	5:28 1.5	11:02 -0.1	18:15 2.4		P	Tu	8	6:08 1.7	11:46 -0.2	18:48 2.5		S	F	8	1:07 -0.1	7:44 2.4	13:40 -0.3	20:16 2.2
O	M	9	0:12 1.2	6:25 1.6	12:05 -0.2	19:10 2.5	W	9	0:42 0.0	7:04 1.9	12:48 -0.3	19:42 2.5	S	9	1:55 -0.2	8:38 2.6	14:42 -0.3	21:10 2.0		
P	Tu	10	1:06 0.1	7:20 1.8	13:03 -0.4	20:05 2.6	Th	10	1:34 -0.1	7:57 2.2	13:50 -0.4	20:37 2.4	S	10	2:40 -0.2	9:33 2.8	15:43 -0.2	22:05 1.8		
	W	11	1:56 0.0	8:11 2.0	14:01 -0.5	20:58 2.6	S	F	11	2:20 -0.1	8:50 2.4	14:50 -0.5	21:30 2.3	M	11	3:26 -0.2	10:30 2.9	16:46 -0.1	22:56 1.6	
	Th	12	2:45 0.0	9:02 2.2	14:59 -0.5	21:51 2.6	S	12	3:07 -0.1	9:45 2.6	15:50 -0.4	22:25 2.1	Tu	12	4:10 -0.2	11:26 2.9	17:55 0.1	23:51 1.4		
	F	13	3:32 0.0	9:55 2.3	15:55 -0.5	22:46 2.3	S	13	3:51 -0.1	10:40 2.7	16:52 -0.3	23:22 1.8	C	W	13	4:57 -0.1	12:25 2.9	19:05 0.2		
S	S	14	4:20 0.1	10:50 2.4	16:55 -0.4	23:45 2.1	M	14	4:38 0.0	11:37 2.7	17:58 -0.2		Th	14	5:05 1.2	13:25 0.0	20:22 2.8	20:22 0.4		
C	S	15	5:05 0.1	11:46 2.4	18:00 -0.3		C	Tu	15	0:22 1.6	5:26 0.0	12:40 2.7	19:10 0.0	E	F	15	1:50 1.1	6:40 0.1	14:26 2.6	21:40 0.5
	M	16	0:45 1.8	5:56 0.8	12:50 2.4	19:10 -0.1	W	16	1:23 1.3	6:16 0.1	13:44 2.7	20:36 0.2	S	16	2:50 1.1	7:40 0.3	15:29 2.4	22:54 0.6		
	Tu	17	1:50 1.6	6:49 0.8	13:56 2.4	20:30 0.0	Th	17	2:25 1.2	7:11 0.2	14:47 2.6	22:08 0.3	S	17	3:52 1.1	8:50 0.4	16:29 2.2	23:46 0.6		
	W	18	2:50 1.4	7:46 0.4	15:05 2.4	21:59 0.1	E	F	18	3:28 1.2	8:12 0.3	15:52 2.5	23:22 0.3	A	M	18	4:48 1.3	10:06 0.5	17:22 2.0	
	Th	19	3:55 1.3	8:48 0.4	16:11 2.5	23:25 0.2	S	19	4:26 1.2	9:25 0.4	16:55 2.4		Tu	19	0:20 0.6	5:42 1.4	11:11 0.6	18:08 1.8		
	F	20	4:55 1.3	9:56 0.4	17:15 2.5		S	20	0:22 0.3	5:24 1.3	10:41 0.4	17:52 2.3	W	20	0:32 0.6	5:28 1.5	12:05 0.6	18:49 1.6		
E	S	21	0:35 0.2	5:50 1.3	11:04 0.4	18:15 2.5	M	21	1:05 0.4	6:14 1.4	11:45 0.4	18:42 2.1	●	Th	21	0:30 0.6	7:09 1.6	12:49 0.6	19:22 1.5	
	S	22	1:25 0.3	6:40 1.4	12:05 0.8	24	A	Tu	22	1:30 0.5	7:00 1.5	12:36 0.5	19:26 1.9	N	F	22	0:38 0.6	7:45 1.7	13:22 0.6	19:50 1.4
●	M	23	2:02 0.4	7:22 1.5	12:56 0.8	19:54 2.2	●	W	23	1:40 0.5	7:40 1.6	13:20 0.4	20:02 1.7	S	23	0:55 0.4	8:17 1.9	13:55 0.6	20:03 1.3	
	Tu	24	2:24 0.5	8:02 1.5	13:37 0.8	20:36 2.0	Th	24	1:40 0.5	8:15 1.7	13:53 0.4	20:35 1.6	S	24	1:21 0.2	8:46 2.0	14:24 0.6	20:06 1.3		
A	W	25	2:35 0.6	8:40 1.6	14:14 0.8	21:14 1.8	F	25	1:42 0.5	8:45 1.8	14:22 0.5	20:58 1.4	M	25	1:52 0.1	9:14 2.1	14:58 0.6	20:20 1.3		
	Th	26	2:40 0.6	9:08 1.7	14:45 0.8	21:45 1.6	N	S	26	1:55 0.4	9:12 1.9	14:50 0.5	21:00 1.3	Tu	26	2:27 -0.1	9:45 2.3	15:35 0.6	20:50 1.3	
	F	27	2:42 0.6	9:35 1.8	15:14 0.3	22:05 1.4	S	27	2:20 0.2	9:35 2.0	15:20 0.5	20:52 1.3	W	27	3:06 -0.2	10:20 2.3	16:18 0.6	21:28 1.3		
	S	28	2:56 0.5	9:56 1.8	15:45 0.3	22:05 1.3	M	28	2:52 0.1	9:58 2.2	15:55 0.5	21:12 1.3	Th	28	3:50 -0.2	11:04 2.4	17:05 0.6	22:15 1.4		
N	S	29	3:22 0.3	10:13 1.9	16:18 0.5	22:00 1.3	Tu	29	3:29 -0.1	10:29 2.2	16:36 0.5	21:44 1.3	●	F	29	4:38 -0.2	11:53 2.4	17:59 0.5	23:10 1.3	
	M	30	3:57 0.2	10:40 2.0	16:58 0.4	22:18 1.8	W	30	4:10 -0.1	11:08 2.3	17:23 0.4	22:28 1.8	E	S	30	5:30 -0.2	12:50 2.4	18:55 0.5		
							D	Th	31	4:55 -0.2	11:56 2.4	18:15 0.4	23:21 1.8							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.0 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Buenos Ayres Mean Local Civil, for the meridian 58° 22' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, F, moon in apogee or perigee.

JULY.					AUGUST.				
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.	
	W.	Mo.				W.	Mo.		
S	1		0:17 6:30 12:56 20:02		P	W	1	2:58 8:43 16:08 21:42	
			1.3 -0.2 2.3 0.6					1.6 0.0 2.0 0.4	
M	2		1:42 7:37 15:06 21:07		S	Th	2	4:15 10:02 17:36 22:40	
			1.3 -0.1 2.3 0.4					1.8 0.0 1.9 0.3	
Tu	3		3:12 8:50 16:15 22:08		F	3		5:21 11:20 18:35 23:34	
			1.4 0.0 2.2 0.3					2.0 0.0 1.8 0.2	
W	4		4:30 10:06 17:15 23:05		○	S	4	6:22 12:30 18:58	
			1.6 0.0 2.1 0.2					2.3 0.1 1.7	
Th	5		5:36 11:20 18:14 23:56		S	5		6:24 7:20 13:25 19:49	
			1.9 0.0 2.1 0.1					0.1 2.6 0.1 1.6	
○	6		6:35 12:30 19:09		M	6		1:11 8:14 15:11	
			2.2 -0.1 2.0					-0.1 2.7 0.2 1.5	
S	7		0:45 7:32 13:35 20:02		Tu	7		1:56 9:08 15:32 21:22	
			0.0 2.5 -0.1 1.8					-0.2 2.8 0.3 1.4	
S	8		1:32 8:26 14:37 20:56		E	W	8	2:00 10:00 16:24 22:06	
			-0.1 2.7 0.0 1.7					-0.2 2.8 0.4 1.4	
M	9		2:18 9:22 15:40 21:45		Th	9		3:25 10:56 17:12 22:52	
			-0.2 2.8 0.1 1.6					-0.2 2.7 0.6 1.3	
Tu	10		3:00 10:16 16:41 22:35		F	10		4:00 11:45 17:54 23:39	
			-0.2 2.9 0.2 1.4					-0.1 2.6 0.8 1.8	
W	11		3:45 11:10 17:40		○	S	11	4:54 12:38 18:36	
			-0.2 2.9 0.4 1.3					0.0 2.2 0.9	
E	Th	12	4:29 12:06 18:41		S	12		5:24 13:30 19:15	
			-0.1 2.8 0.5					1.2 0.1 2.0 0.9	
○	F	13	5:16 1:06 19:24		A	M	13	1:14 8:30 15:00 19:48	
			1.2 0.0 2.6 0.8					1.8 0.5 1.8 0.9	
S	14		1:11 6:08 14:02 20:54		Tu	14		2:06 9:20 16:10 20:19	
			1.1 0.1 2.4 0.7					1.3 0.5 1.6 0.9	
S	15		2:10 7:02 15:00 21:52		W	15		3:04 10:15 16:54	
			1.1 0.3 2.1 0.6					1.4 0.6 1.4 0.8	
A	M	16	3:08 8:04 15:55 22:34		N	Th	16	3:59 11:12 16:35 21:26	
			1.1 0.5 1.9 0.8					1.4 0.6 1.8 0.7	
Tu	17		4:06 9:06 16:43 22:51		Th	17		4:49 12:10 17:10 22:10	
			1.3 0.6 1.7 0.8					1.6 0.7 1.8 0.5	
W	18		4:59 10:10 17:26 23:00		S	18		5:34 13:06 17:44 22:55	
			1.4 0.6 1.5 0.7					1.7 0.7 1.8 0.4	
N	Th	19	5:45 11:06 18:03 23:17		●	S	19	6:19 13:56 18:16 23:40	
			1.5 0.7 1.4 0.6					1.9 0.6 1.8 0.2	
F	20		6:25 11:54 18:38 23:42		M	20		7:00 14:45 18:50	
			1.6 0.7 1.3 0.4					2.1 0.6 1.4	
●	S	21	7:02 12:35 18:58		Tu	21		7:41 15:30 19:24	
			1.8 0.7 1.3					0.0 2.2 0.5 1.4	
S	22		0:17 7:38 13:15 19:16		W	22		1:10 8:26 14:15 20:05	
			0.2 2.0 0.6 1.8					-0.2 2.4 0.4 1.5	
M	23		0:52 8:12 13:52 19:37		E	Th	23	1:57 9:08 15:00 20:46	
			0.1 2.1 0.6 1.3					-0.3 2.5 0.4 1.6	
Tu	24		1:30 8:48 14:34 20:08		F	24		2:45 10:00 15:45 21:30	
			-0.1 2.3 0.6 1.4					-0.4 2.5 0.3 1.6	
W	25		2:10 9:27 15:18 20:46		S	25		3:35 10:56 16:25 22:20	
			-0.2 2.4 0.6 1.4					-0.4 2.5 0.4 1.6	
E	Th	26	2:53 10:10 16:04 21:30		○	S	26	4:28 11:42 17:24 23:15	
			-0.3 2.5 0.5 1.6					-0.4 2.4 0.4 1.7	
Th	27		3:40 10:55 16:53 22:18		P	M	27	5:11 12:30 18:16	
			-0.4 2.5 0.5 1.4					-0.3 2.2 0.5	
D	S	28	4:30 11:50 17:45 23:12		Tu	28		6:00 13:25 18:44 19:11	
			-0.4 2.4 0.5 1.4					1.7 -0.2 2.0 0.5	
S	29		5:24 12:50 18:40		S	W	29	1:33 7:32 14:49 20:12	
			-0.3 2.3 0.5					1.8 -0.1 1.9 0.5	
M	30		0:15 6:24 13:52 19:40		Th	30		2:49 8:50 15:56 21:14	
			1.4 -0.2 2.2 0.5					1.9 0.0 1.7 0.5	
Tu	31		1:34 7:31 14:59 20:42		F	31		4:02 10:11 17:00 22:15	
			1.4 -0.1 2.1 0.5					2.0 0.1 1.6 0.4	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.0 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Buenos Ayres Mean Local Civil, for the meridian 58° 22' W., 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar., E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



JANUARY.					FEBRUARY.					MARCH.							
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
E D	M 1	2:15 1.3	8:20 4.4	14:54 0.1	21:24 3.9	A	Th 1	3:35 1.3	9:35 3.3	15:32 1.2	22:00 3.9	A	Th 1	2:07 1.1	8:14 3.5	14:10 1.2	20:26 4.0
	Tu 2	3:14 1.4	9:15 4.0	15:36 0.5	22:10 3.9		F 2	4:30 1.3	10:27 3.1	16:15 1.4	22:42 4.0		F 2	2:54 1.1	9:00 3.2	14:47 1.5	21:06 4.0
	W 3	4:15 1.4	10:10 3.6	16:18 0.9	22:54 4.0		S 3	5:22 1.2	11:20 2.9	16:57 1.5	23:26 4.2		S 3	3:44 1.1	9:52 2.9	15:24 1.6	21:48 4.1
A	Th 4	5:15 1.4	11:06 3.8	17:05 1.1	23:37 4.0	N	S 4	6:14 1.0	12:18 2.8	17:40 1.6		N	S 4	4:38 1.0	10:48 2.8	16:08 1.7	22:35 4.2
	F 5	6:10 1.3	12:00 3.1	17:52 1.3			M 5	0:10 4.3	7:05 0.7	13:12 2.8	18:30 1.6		M 5	5:30 0.8	11:45 2.8	16:56 1.7	23:25 4.4
	S 6	0:19 4.1	7:04 1.1	12:58 3.0	18:35 1.5		Tu 6	0:56 4.5	7:52 0.4	14:05 2.9	19:20 1.6		Tu 6	6:20 0.6	12:38 2.9	17:54 1.6	
N	S 7	1:00 4.3	7:50 0.9	13:50 2.9	19:17 1.5	O	W 7	1:44 4.8	8:38 0.2	14:55 3.0	20:10 1.5	O	W 7	0:16 4.5	7:12 0.3	13:29 3.1	18:50 1.5
	M 8	1:40 4.5	8:34 0.6	14:41 2.9	20:00 1.6		Th 8	2:30 5.0	9:24 -0.1	15:40 3.2	21:00 1.3		Th 8	1:08 4.8	8:00 0.1	14:17 3.4	19:45 1.3
	Tu 9	2:20 4.7	9:18 0.3	15:27 2.9	20:40 1.6		F 9	3:18 5.1	10:17 -0.3	16:24 3.4	21:48 1.2		F 9	2:02 5.0	8:45 -0.1	15:04 3.7	20:38 1.0
C	W 10	3:00 4.9	9:58 0.0	16:13 3.0	21:24 1.5	P	S 10	4:05 5.2	10:50 -0.4	17:10 3.7	22:40 1.0	P	S 10	2:54 5.1	9:32 -0.2	15:47 3.9	21:30 0.7
	Th 11	3:44 5.0	10:40 -0.2	16:56 3.2	22:10 1.5		S 11	4:55 5.2	11:37 -0.3	17:54 3.9	23:32 0.8		S 11	3:45 5.2	10:16 -0.3	16:32 4.2	22:25 0.5
	F 12	4:28 5.1	11:22 -0.4	17:40 3.3	22:57 1.4		M 12	5:45 5.1	12:20 -0.2	18:36 4.1			M 12	4:38 5.1	11:02 -0.2	17:16 4.5	23:17 0.3
E	S 13	5:18 5.1	12:04 -0.4	18:25 3.4	23:44 1.3	C	Tu 13	0:26 0.7	6:38 4.9	13:05 0.0	19:22 4.3	C	Tu 13	5:30 4.9	11:48 0.0	18:00 4.6	
	S 14	6:00 5.1	12:48 -0.3	19:08 3.6			W 14	1:22 0.6	7:34 4.5	13:50 0.3	20:07 4.5		W 14	0:08 0.1	6:28 4.7	12:36 0.3	18:50 4.7
	M 15	0:36 1.2	6:50 4.9	13:32 -0.2	19:54 3.8		Th 15	2:16 0.4	8:32 4.2	14:40 0.6	20:56 4.5		Th 15	1:05 0.1	7:26 4.4	13:30 0.6	19:40 4.8
C	Tu 16	1:31 1.1	7:44 4.6	14:18 0.1	20:36 4.1	S	F 16	3:20 0.4	9:38 3.9	15:35 0.9	21:50 4.7	S	F 16	2:08 0.0	8:30 4.0	14:20 0.9	20:34 4.8
	W 17	2:30 1.0	8:39 4.3	15:00 0.3	21:25 4.3		S 17	4:26 0.3	10:45 8.6	16:30 1.1	22:47 4.8		S 17	3:12 0.0	9:35 3.7	15:16 1.1	21:29 4.9
	Th 18	3:30 0.8	9:44 4.0	15:50 0.6	22:15 4.4		S 18	5:35 0.1	11:52 3.4	17:27 1.2	23:46 5.0		S 18	4:20 -0.1	10:40 3.5	16:15 1.3	22:28 4.9
P	F 19	4:34 0.6	10:48 3.8	16:49 0.8	23:08 4.7	E	M 19	6:40 -0.1	12:56 3.3	18:26 1.3		E	M 19	5:26 -0.1	11:47 3.4	17:18 1.4	23:30 4.9
	S 20	5:45 0.4	12:00 3.6	17:44 1.0			Tu 20	0:44 5.1	7:42 -0.2	13:55 3.4	19:25 1.2		Tu 20	6:28 -0.1	12:48 3.4	18:18 1.3	
	S 21	0:05 5.0	6:51 0.1	13:05 3.4	18:40 1.1		W 21	1:40 5.3	8:38 -0.3	14:49 3.5	20:22 1.2		W 21	0:30 4.9	7:24 -0.2	13:42 3.6	19:20 1.2
S	M 22	1:00 5.2	7:55 -0.2	14:09 3.4	19:38 1.1	●	Th 22	2:38 5.3	9:28 -0.4	15:40 3.6	21:16 1.0	●	Th 22	1:28 4.8	8:15 -0.1	14:30 3.7	20:15 1.1
	Tu 23	1:57 5.4	8:52 -0.5	15:05 3.4	20:34 1.1		F 23	3:27 5.2	10:14 -0.3	16:25 3.7	22:08 1.0		F 23	2:21 4.9	9:00 0.0	15:15 3.9	21:05 0.9
	W 24	2:50 5.6	9:46 -0.7	16:00 3.5	21:30 1.1		S 24	4:18 5.0	10:56 -0.2	17:10 3.9	22:58 0.9		S 24	3:15 4.7	9:42 0.1	15:56 4.0	21:56 0.8
E	Th 25	3:44 5.6	10:38 -0.7	16:50 3.6	22:20 1.0	M	S 25	5:06 4.8	11:38 0.1	17:52 4.0	23:46 1.0	M	S 25	4:02 4.5	10:23 0.3	16:37 4.1	22:42 0.8
	F 26	4:34 5.5	11:24 -0.6	17:40 3.7	23:14 1.1		M 26	5:52 4.5	12:15 0.3	18:34 4.0			M 26	4:50 4.8	11:00 0.6	17:15 4.2	23:24 0.7
	S 27	5:24 5.2	12:10 -0.5	18:25 3.8			Tu 27	0:36 1.0	6:44 4.1	12:54 0.7	19:12 4.0		Tu 27	5:33 4.0	11:38 0.8	17:48 4.1	
E	S 28	0:05 1.1	6:12 4.9	12:54 -0.2	19:14 3.9	W	W 28	1:22 1.0	7:28 3.7	13:30 1.0	19:49 3.9	A	W 28	0:05 0.8	6:16 3.8	12:13 1.2	18:21 4.1
	M 29	0:58 1.2	7:05 4.6	13:34 0.1	19:56 4.0								Th 29	0:47 0.8	7:00 3.4	12:45 1.4	18:56 4.1
	Tu 30	1:52 1.2	7:58 4.1	14:14 0.5	20:40 4.0								F 30	1:30 0.9	7:44 3.2	13:16 1.7	19:34 4.1
	W 31	2:46 1.2	8:45 3.7	14:50 0.9	21:20 3.9								S 31	2:17 0.9	8:34 3.0	13:50 1.7	20:14 4.1

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cape Horn Mean Local Civil, for the meridian 67° 17' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
N	S 1	3:05	9:26	14:33	21:00	D	Tu 1	3:18	9:50	14:50	21:11	F	1	4:24	11:00	16:45	22:52
U	M 2	0.8	2.8	1.8	4.1		W 2	0.5	2.9	1.9	4.2		S 2	0.4	3.7	1.4	4.1
		0.8	2.8	1.8	4.2			4:10	10:45	15:56	22:14	E		5:16	11:47	17:54	
	Tu 3	4:50	11:15	16:25	22:46		Th 3	0.4	3.1	1.8	4.2		S 3	0.4	4.1	0.9	
		0.6	2.8	1.8	4.3			5:00	11:35	17:05	23:16			0:00	6:10	12:34	18:50
	W 4	5:40	12:08	17:27	23:44		F 4	0.4	3.4	1.6	4.3			4.1	0.5	4.4	0.4
		0.4	3.1	1.6	4.5			5:55	12:24	18:10			M 4	1:00	7:05	13:24	19:47
	Th 5	6:34	12:56	18:28		E	S 5	0.3	3.8	1.2				4.2	0.5	4.9	-0.1
		0.2	3.4	1.3				0:20	6:42	13:08	19:10		Tu 5	2:02	7:55	14:10	20:44
	F 6	0:42	7:21	13:42	19:26		S 6	4.4	0.2	4.2	0.7			4.2	0.5	5.3	-0.5
		4.7	0.0	3.8	1.0			1:20	7:32	13:54	20:06	P	W 6	3:00	8:45	14:58	21:40
	S 7	1:40	8:08	14:27	20:22		M 7	4.5	0.2	4.6	0.2			4.2	0.5	5.7	-0.8
		4.8	-0.1	4.1	0.6			2:15	8:25	14:38	20:54		Th 7	3:55	9:34	15:46	22:35
E	S 8	2:33	8:55	15:10	21:15		Tu 8	4.6	0.2	4.9	-0.2			4.1	0.6	5.9	-1.1
		4.9	-0.1	4.5	0.3	P		3:12	9:14	15:25	21:50	S	F 8	4:49	10:25	16:37	23:30
O	M 9	3:26	9:42	15:55	22:05		W 9	4.7	0.3	5.3	-0.6			4.0	0.7	5.9	-1.1
		4.9	-0.1	4.7	-0.1			4:10	10:00	16:12	22:45		S 9	5:44	11:15	17:30	
P	Tu 10	4:20	10:30	16:42	22:58		Th 10	4.5	0.4	5.5	-0.8			3.8	0.9	5.8	
		4.9	0.1	4.9	-0.8			5:05	10:50	17:00	23:41		S 10	0:22	6:40	12:10	18:22
	W 11	5:18	11:20	17:30	23:54	S	F 11	4.3	0.6	5.6	-0.9			-1.0	3.7	1.1	3.7
		4.7	0.3	5.1	-0.4			6:02	11:39	17:50			M 11	1:17	7:40	13:10	19:20
	Th 12	6:15	12:08	18:20			S 12	4.1	0.9	5.6				-0.8	3.6	1.2	5.2
		4.4	0.6	5.2				0:39	7:02	12:34	18:45		Tu 12	2:14	8:39	14:12	20:18
	F 13	0:54	7:18	13:00	19:10		S 13	-0.9	3.8	1.1	5.4			-0.5	3.7	1.4	4.8
		-0.5	4.1	0.9	5.2			1:40	8:06	13:32	19:44	C	W 13	3:10	9:39	15:20	21:25
S	S 14	1:55	8:20	13:56	20:07		M 14	-0.7	3.6	1.3	5.2			-0.2	3.7	1.5	4.4
		-0.4	3.8	1.2	5.1			2:40	9:05	14:35	20:45		Th 14	4:04	10:40	16:32	22:32
C	S 15	3:00	9:25	14:55	21:05		Tu 15	-0.5	3.5	1.5	4.9			0.1	3.9	1.4	4.1
		-0.4	3.6	1.4	4.9			3:41	10:10	15:45	21:46	E	F 15	4:58	11:30	17:42	23:35
	M 16	4:04	10:30	16:00	22:10		W 16	-0.3	3.6	1.5	4.6			0.5	4.0	1.2	3.7
		-0.3	3.3	1.5	4.8			4:40	11:12	16:55	22:55		S 16	5:50	12:17	18:42	
	Tu 17	5:08	11:34	17:08	23:14		Th 17	-0.1	3.8	1.5	4.4			0.8	4.1	1.0	
		-0.2	3.5	1.5	4.7			5:36	12:08	18:00			S 17	0:36	6:38	13:00	19:35
	W 18	6:06	12:32	18:12		E	F 18	0.1	3.9	1.3				3.5	0.9	4.3	0.5
		-0.1	3.6	1.3				0:02	6:26	12:55	19:04	A	M 18	1:30	7:20	13:40	20:14
	Th 19	0:16	7:00	13:22	19:14		S 19	4.2	0.3	4.1	1.0			3.4	1.1	4.4	0.5
		4.6	0.0	3.9	1.1			1:00	7:14	13:39	19:55		Tu 19	2:18	7:57	14:14	21:00
	F 20	1:16	7:47	14:07	20:07		S 20	4.0	0.6	4.2	0.8			3.3	1.2	4.6	0.4
		4.4	0.1	4.0	0.9			1:53	8:00	14:13	20:38		W 20	3:00	8:35	14:47	21:37
E	S 21	2:12	8:28	14:48	20:56		M 21	3.9	0.7	4.3	0.6			3.2	1.4	4.7	0.2
		4.4	0.3	4.2	0.7			2:40	8:35	14:50	21:20	●	Th 21	3:42	9:07	15:20	22:15
	S 22	3:06	9:10	15:25	21:39		Tu 22	3.8	0.9	4.5	0.5			3.1	1.5	4.8	0.1
		4.2	0.6	4.2	0.6	A		3:24	9:10	15:22	22:00	N	F 22	4:20	9:37	15:53	22:59
●	M 23	3:45	9:50	16:00	22:20		W 23	3.6	1.1	4.6	0.4			3.1	1.5	4.9	0.1
		4.1	0.8	4.3	0.6			4:05	9:40	15:54	22:36		S 23	5:00	10:08	16:30	23:25
	Tu 24	4:25	10:23	16:30	23:00		Th 24	3.4	1.3	4.6	0.3			3.0	1.5	4.9	-0.1
		3.9	1.0	4.4	0.5			4:45	10:10	16:25	23:14		S 24	5:38	10:46	17:08	
A	W 25	5:10	10:52	17:02	23:38		F 25	3.2	1.5	4.6	0.3			3.0	1.6	4.9	
		3.6	1.2	4.4	0.5			5:25	10:40	16:48	23:51		M 25	0:04	6:20	11:25	17:50
	Th 26	6:50	11:24	17:35		N	S 26	3.0	1.6	4.6	0.2			-0.1	3.0	1.6	4.8
		3.4	1.5	4.3				6:06	11:10	17:32			Tu 26	0:43	7:08	12:12	18:11
	F 27	0:18	6:32	11:51	18:08		S 27	2.9	1.7	4.6				-0.1	3.1	1.6	4.7
		0.6	3.1	1.6	4.3			0:30	6:52	11:45	18:10		W 27	1:28	7:53	13:05	19:22
	S 28	1:00	7:16	12:24	18:46		M 28	0.2	2.8	1.7	4.5			0.0	3.2	1.6	4.4
		0.6	2.9	1.8	4.2			1:10	7:38	12:30	18:54		Th 28	2:10	8:38	14:08	20:18
N	S 29	1:45	8:05	13:02	19:28		Tu 29	0.2	2.8	1.8	4.4			0.2	3.4	1.5	4.2
		0.6	2.7	1.8	4.2			1:55	8:27	13:22	19:44	D	F 29	3:00	9:30	15:20	21:25
	M 30	2:30	8:57	13:50	20:16		W 30	0.3	2.9	1.8	4.3	E		0.4	3.7	1.4	4.0
		0.5	2.7	1.9	4.2			2:44	9:20	14:24	20:40		S 30	3:48	10:20	16:26	22:54
							Th 31	0.3	3.1	1.8	4.2			0.6	4.0	1.0	3.9
								3:34	10:08	15:35	21:46						
								0.4	3.3	1.7	4.1						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Cape Horn Mean Local Civil, for the meridian 67° 17' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
	S 1	4:40 0.7	11:12 4.3	17:30 0.7	23:44 3.8	P	W 1	0:42 3.3	6:18 1.1	12:36 5.1	19:30 -0.2		S 1	2:30 3.5	8:02 1.0	14:16 5.4	21:05 -0.5
	M 2	5:45 0.8	12:06 4.7	18:27 0.3		S	Th 2	1:45 3.5	7:14 1.1	13:32 5.4	20:27 -0.6	C	S 2	3:18 3.8	8:58 0.8	15:10 5.4	21:50 -0.5
	Tu 3	0:50 3.8	6:40 0.8	12:56 5.1	19:40 -0.2	F	3	2:40 3.5	8:10 1.0	14:28 5.7	21:20 -0.8	M	3	4:02 4.0	9:48 0.7	15:00 5.3	22:32 -0.4
P	W 4	1:52 3.8	7:32 0.8	13:50 5.5	20:35 -0.6	C	S 4	3:30 3.7	9:02 0.9	15:20 5.8	22:09 -0.9	Tu	4	4:44 4.2	10:38 0.6	16:41 5.1	23:10 -0.2
S	Th 5	2:50 3.7	8:22 0.8	14:40 5.8	21:30 -0.9	S	5	4:20 3.8	9:54 0.8	16:10 5.8	22:55 -0.8	E	W 5	5:25 4.3	11:25 0.5	17:34 4.8	23:52 0.1
C	F 6	3:42 3.8	9:15 0.8	15:32 6.0	22:22 -1.1	M	6	5:08 3.9	10:44 0.7	16:56 5.5	23:46 -0.6	Th	6	6:06 4.4	12:10 0.6	18:20 4.4	
	S 7	4:34 3.8	10:06 0.8	16:22 6.0	23:14 -1.1	Tu	7	5:52 4.0	11:38 0.7	17:46 5.2		F	7		6:42 0.4	12:52 4.8	19:06 0.7
	S 8	5:25 3.8	11:00 0.8	17:12 5.8		E	W 8	0:22 -0.3	6:38 4.1	12:56 0.8	19:38 4.8	S	8	1:09 0.8	7:22 4.2	13:42 0.8	19:50 3.6
	M 9	0:05 -0.9	6:18 3.8	11:50 1.0	18:00 5.5	Th	9	1:05 0.0	7:25 4.1	13:22 1.0	19:29 4.3	A	S 9	1:46 1.2	8:00 4.1	14:31 1.0	20:40 3.2
	Tu 10	0:52 -0.7	7:10 3.9	12:47 1.1	19:00 5.1	F	10	1:46 0.4	8:10 4.1	14:20 1.0	20:24 3.7	C	M 10	2:24 1.6	8:40 4.0	15:25 1.1	21:36 2.8
	W 11	1:42 -0.3	8:05 3.8	13:48 1.2	19:55 4.6	C	S 11	2:30 0.9	8:56 4.0	15:15 1.2	21:18 3.4	Tu	11	3:00 1.8	9:26 3.9	16:22 1.1	22:40 2.7
E	Th 12	2:30 0.1	8:58 3.9	14:52 1.3	20:56 4.1	S	12	3:16 1.2	9:42 3.9	16:18 1.3	22:17 3.1	N	W 12	3:50 1.9	10:18 4.0	17:20 1.0	23:42 2.6
C	F 13	3:18 0.5	9:50 3.9	16:00 1.3	21:58 3.6	A	M 13	4:04 1.5	10:30 3.9	17:21 1.2	23:24 2.8	Th	13	4:47 1.9	11:10 4.0	18:17 0.8	
	S 14	4:08 0.9	10:40 4.0	17:08 1.3	23:00 3.3	Tu	14	4:56 1.7	11:20 4.0	18:20 1.0		F	14	5:33 2.7	12:07 1.9	19:07 4.2	19:09 0.6
	S 15	5:00 1.1	11:30 4.0	18:10 1.1		W	15	0:25 2.7	5:48 1.8	12:10 4.2	19:10 0.8	S	15		6:49 3.0	13:00 1.8	19:52 4.4
A	M 16	0:05 3.2	5:55 1.3	12:16 4.2	19:07 0.9	N	Th 16	1:20 2.7	6:36 1.8	13:55 4.4	19:55 0.5	S	16	2:12 3.2	7:43 1.5	14:56 1.5	20:34 4.6
	Tu 17	1:02 3.0	6:40 1.5	13:00 4.3	19:55 0.7	F	17	2:06 2.9	7:25 1.7	13:38 4.6	20:34 0.2	M	17	2:54 3.6	8:32 1.1	14:48 4.9	21:18 -0.1
	W 18	1:52 3.0	7:18 1.6	13:38 4.5	20:35 0.5	S	18	2:50 3.0	8:10 1.6	14:22 4.8	21:24 -0.1	●	Tu 18	3:32 4.0	9:20 0.8	15:30 5.0	21:56 -0.2
N	Th 19	2:38 2.9	7:58 1.6	14:15 4.7	21:10 0.2	●	S 19	3:28 3.3	8:52 1.4	15:05 5.0	21:54 -0.2	E	W 19	4:13 4.3	10:07 0.4	16:19 5.0	22:38 -0.1
	F 20	3:20 3.0	8:36 1.5	14:50 4.9	21:46 0.0	M	20	4:06 3.6	9:36 1.1	15:50 5.1	22:30 -0.3	Th	20		10:54 4.6	17:07 0.2	23:20 4.9
●	S 21	3:56 3.1	9:14 1.5	15:20 5.0	22:24 -0.2	Tu	21	4:45 3.8	10:20 0.9	16:35 5.2	23:08 -0.3	P	F 21	5:32 4.7	11:40 0.0	17:58 4.7	
	S 22	4:24 3.2	9:50 1.4	16:06 5.1	23:00 -0.3	W	22	5:25 4.0	11:05 0.7	17:20 5.1	23:46 -0.2	S	22	0:06 0.2	6:18 4.8	12:32 -0.1	18:50 4.5
	M 23	5:14 3.3	10:34 1.3	16:48 5.1	23:35 -0.3	E	Th 23	6:02 4.2	11:54 0.6	18:06 4.9		S	23	0:54 0.5	7:02 4.9		19:50 4.1
	Tu 24	5:55 3.4	11:15 1.3	17:30 5.0		F	24	0:29 0.0	6:45 4.4	12:45 0.5	18:57 4.5	M	24	1:38 0.9	7:50 4.9	14:30 -0.1	20:54 3.7
	W 25	0:15 -0.2	6:35 3.5	12:04 1.1	18:17 4.8	S	25	1:11 0.3	7:25 4.4	13:36 0.4	19:51 4.2	Tu	25	2:30 1.2	8:48 4.9	15:38 0.0	22:00 3.3
E	Th 26	0:55 0.0	7:16 3.7	12:55 1.1	19:05 4.5	D	S 26	2:00 0.6	8:17 4.5	14:40 0.4	20:56 3.8	W	26	3:20 1.4	9:46 4.8	16:45 0.0	23:10 3.2
	F 27	1:40 0.2	8:00 3.9	13:58 1.1	20:04 4.2	P	M 27	2:55 1.0	9:10 4.6	15:50 0.4	22:10 3.4	Th	27	4:38 1.5	10:53 4.8	17:55 0.0	
D	S 28	2:24 0.5	8:48 4.1	14:54 0.9	21:04 3.6	Tu	28	3:50 1.2	10:10 4.7	17:04 0.3	23:24 3.2	F	28	0:20 3.3	5:50 1.5	12:00 4.8	19:00 0.0
	S 29	3:15 0.8	9:40 4.2	16:04 0.8	22:15 3.6	S	W 29	4:55 1.4	11:15 4.7	18:14 0.1		S	29	1:20 3.5	6:56 1.3	13:05 4.8	19:52 -0.1
	M 30	4:15 1.0	10:40 4.5	17:15 0.5	23:32 3.6	Th	30	0:24 3.2	0:00 1.4	12:20 5.1	19:18 -0.2	S	30	2:13 3.8	7:58 1.1	14:05 4.8	20:42 -0.1
	Tu 31	5:18 1.1	11:38 4.8	18:28 0.2		F	31	1:35 3.4	7:05 1.3	13:20 5.2	20:14 -0.4						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless minus ( ) sign is before the height, in which case subtract it.

The time used is Cape Horn Mean Local Civil, for the meridian 67° 17' W., 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon, for instance, 15.47 is 3:47 p.m.

●, new moon; ♀, 1st quar.; ○, full moon; ☾, 3rd quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
E	M 1	3:00	8:52	15:00	21:25	O	Th 1	3:50	10:15	16:22	22:15	A	S 1	3:50	10:40	16:48	22:12
		4.0	0.8	4.8	0.0			4.5	0.3	4.0	0.9			4.7	0.2	3.8	1.5
	Tu 2	3:40	9:44	15:52	22:07		F 2	4:24	10:54	17:05	22:48		S 2	4:22	11:17	17:36	22:46
E	W 3	4:20	10:30	16:38	22:46	S	3	4:55	11:35	17:45	23:20	N	M 3	4:56	11:54	18:08	23:17
		4.4	0.4	4.5	0.3			4.7	0.2	3.5	1.4			4.7	0.1	3.0	1.7
	Th 4	4:59	11:10	17:20	23:24		A S 4	5:30	12:15	18:26	23:50		Tu 4	5:30	12:28	18:44	23:48
A	F 5	5:34	11:50	18:04	23:56	N	M 5	6:00	12:50	19:08	...	W	5	6:05	13:04	19:26	...
		4.5	0.4	4.0	1.0			4.6	0.3	3.0	...			4.6	0.1	3.0	...
	S 6	6:05	12:34	18:45	...		Tu 6	0:20	6:34	13:28	19:48		Th 6	0:25	6:44	13:40	20:07
A	S 7	0:27	6:37	13:15	19:26	W	7	0:50	7:10	14:07	20:32	C	S 8	1:08	7:24	14:20	20:48
		1.3	4.4	0.6	3.3			1.7	4.4	0.4	2.8			1.7	4.3	0.2	3.2
	M 8	1:00	7:15	13:56	20:12		Th 8	1:30	7:50	14:50	21:20		S 9	2:00	8:10	15:00	21:32
N	Tu 9	1:32	7:47	14:50	21:00	C	F 9	2:16	8:35	15:37	22:10	E	M 10	2:58	9:05	15:46	22:18
		1.6	4.2	0.8	2.8			1.9	4.2	0.5	3.0			1.6	4.1	0.4	3.7
	W 10	2:05	8:28	15:30	21:55		S 10	3:17	9:40	16:27	23:00		Tu 11	4:04	10:10	16:35	23:08
C	Th 11	2:50	9:15	16:24	22:55	S	11	4:27	10:40	17:18	23:50	E	M 10	4:14	10:10	16:35	23:08
		1.9	4.0	0.8	2.8			1.7	4.0	0.6	3.6			4.0	4.0	0.5	4.0
	F 12	3:50	10:16	17:17	23:50		M 12	5:40	11:47	18:12	...		Tu 11	5:10	11:16	17:26	23:56
S	S 13	5:05	11:20	18:10	...	E	Tu 13	0:40	6:45	12:54	19:05	P	W 12	6:14	12:24	18:28	...
		1.9	4.1	0.5	...			4.0	1.0	4.1	0.5			0.7	8.9	0.7	...
	S 14	0:43	6:12	12:24	19:00		W 14	1:30	7:40	13:54	20:00		Th 13	0:50	7:17	13:32	19:25
M	M 15	1:30	7:12	13:22	19:50	Th	15	2:16	8:36	14:54	20:52	S	F 14	1:42	8:20	14:35	20:18
		3.6	1.3	4.4	0.3			4.7	0.0	4.4	0.5			5.1	-0.2	3.9	0.8
	Tu 16	2:14	8:10	14:18	20:38		F 16	3:04	9:38	15:50	21:40		S 15	2:34	9:18	15:36	21:10
E	W 17	2:56	9:00	15:10	21:23	P	S 17	3:54	10:27	16:46	22:28	S	S 16	3:26	10:14	16:30	22:02
		4.4	0.4	4.7	0.1			5.1	0.4	4.3	0.5			5.8	-1.0	3.9	0.8
	Th 18	3:37	9:48	16:05	22:12		S 18	4:40	11:22	17:42	23:16		M 17	4:17	11:10	17:25	22:55
P	F 19	4:22	10:40	17:00	22:55	S	M 19	5:28	12:16	18:37	...	W	Tu 18	5:10	12:02	18:20	23:50
		5.0	-0.3	4.7	0.3			5.8	-1.1	4.0	...			6.0	-1.2	3.9	0.9
	S 20	5:05	11:30	17:52	23:40		Tu 20	0:06	6:18	13:12	19:34		W 19	6:00	12:55	19:15	...
S	S 21	5:50	12:24	18:47	...	W	21	1:00	7:14	14:05	20:30	Th	20	0:46	6:56	13:46	20:10
		5.4	-0.7	4.2	...			1.1	5.5	-0.8	3.7			1.0	5.6	-0.8	3.9
	M 22	0:27	6:38	13:20	19:44		Th 22	2:00	8:08	15:02	21:28		F 21	1:44	7:53	14:37	21:04
D	Tu 23	1:18	7:30	14:20	20:42	D	F 23	3:00	9:08	16:00	22:28	E	S 22	2:46	8:54	15:29	21:58
		1.0	5.3	-0.6	3.7			1.3	4.9	-0.3	3.7			1.1	4.8	-0.2	4.1
	W 24	2:14	8:26	15:20	21:47		S 24	4:10	10:14	16:55	23:26		S 23	3:50	9:55	16:19	22:50
D	Th 25	3:15	9:25	16:25	22:52	S	25	5:20	11:25	17:50	...	M	24	5:00	11:00	17:10	23:40
		1.4	4.9	-0.2	3.5			1.3	4.2	0.4	...			1.0	3.9	0.7	4.2
	F 26	4:24	10:32	17:28	23:58		M 26	0:22	6:30	12:30	18:44		Tu 25	6:02	12:02	18:02	...
E	S 27	5:36	11:40	18:25	...	E	Tu 27	1:10	7:30	13:32	19:36	W	26	0:30	7:05	13:05	18:54
		1.4	4.5	0.1	...			4.2	0.8	3.8	0.8			4.3	0.9	3.4	1.2
	S 28	0:55	6:46	12:52	19:20		W 28	1:56	8:24	14:28	20:22		Th 27	1:14	8:00	14:00	19:38
E	M 29	1:46	7:48	13:54	20:10	W	29	2:36	9:14	15:19	21:00	A	F 28	1:58	8:50	14:54	20:20
		4.0	1.0	4.3	0.4			4.5	0.5	3.5	1.2			4.5	0.5	3.1	1.5
	Tu 30	2:32	8:44	14:48	21:00		Th 29	3:14	9:58	16:06	21:38		S 29	2:36	9:34	15:43	21:00
W	W 31	3:14	9:30	15:40	21:40	C	F 30	3:14	9:58	16:06	21:38	O	S 30	3:15	10:14	16:25	21:36
		4.3	0.5	4.1	0.7			4.6	0.3	3.4	1.4			4.7	0.2	2.9	1.7
													M 31	3:50	10:50	17:04	22:12

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cape Horn Mean Local Civil, for the meridian 67° 17' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	1:40 2.4	7:30 1.3	14:40 8.1	21:18 1.1	☾	Tu	1	2:35 2.4	7:48 1.4	15:05 8.3	21:56 0.7	☾	F	1	4:34 2.9	10:14 1.1	16:40 8.4	23:12 0.3
	M	2	2:55 2.3	8:32 1.5	15:47 8.1	22:38 1.1		W	2	4:00 2.4	9:24 1.4	16:14 8.3	23:00 0.6	E	S	2	5:38 3.3	11:41 0.8	17:46 8.4	
	Tu	3	4:40 2.2	10:09 1.4	16:57 8.3	23:45 0.8		Th	3	5:19 2.7	10:58 1.2	17:20 8.5	23:55 0.3		S	3	0:02 0.1	6:28 8.7	12:43 0.4	18:47 8.4
	W	4	6:04 2.5	11:35 1.1	18:02 8.5			F	4	6:15 3.1	12:10 0.8	18:20 8.7			M	4	0:56 0.0	7:20 4.2	13:40 0.1	19:43 8.5
	Th	5	0:40 0.5	7:00 2.8	12:40 0.8	18:55 3.8	E	S	5	0:40 0.1	7:00 8.5	13:10 0.4	19:16 8.8		Tu	5	1:45 -0.1	8:08 4.6	14:33 -0.2	20:36 3.6
	F	6	1:26 0.2	7:42 3.3	13:35 0.4	19:46 4.1		S	6	1:30 -0.1	7:47 4.0	14:00 0.0	20:08 8.9	P	W	6	2:31 -0.2	8:55 4.9	15:26 -0.4	21:26 3.5
	S	7	2:09 -0.2	8:21 8.7	14:24 0.0	20:34 4.3		M	7	2:20 -0.3	8:32 4.4	14:46 -0.4	20:57 4.0	☾	Th	7	3:15 -0.2	9:43 5.1	16:16 -0.6	22:14 8.4
E	S	8	2:48 -0.4	9:01 4.1	15:06 -0.3	21:20 4.4	☾	Tu	8	3:00 -0.4	9:14 4.7	15:35 -0.6	21:42 4.0	S	F	8	4:02 -0.2	10:31 5.2	17:07 -0.6	23:04 3.3
☾	M	9	3:32 -0.5	9:42 4.4	15:55 -0.5	22:05 4.4		W	9	3:40 -0.4	10:00 4.9	16:25 -0.6	22:30 8.8		S	9	4:48 0.0	11:20 5.1	17:59 -0.5	23:57 3.2
P	Tu	10	4:12 -0.5	10:22 4.5	16:36 -0.6	22:48 4.2		Th	10	4:22 -0.2	10:50 5.0	17:18 -0.6	23:18 8.6		S	10	5:37 0.2	12:10 4.9	18:51 -0.3	
	W	11	4:50 -0.4	11:08 4.6	17:25 -0.5	23:35 8.9	S	F	11	5:06 0.0	11:35 4.9	18:10 -0.5			M	11	0:54 3.1	6:31 0.4	13:03 4.6	19:45 -0.2
	Th	12	5:32 -0.1	11:55 4.5	18:18 -0.4			S	12	0:09 8.8	5:55 0.2	12:30 4.7	19:08 -0.2	☾	Tu	12	1:58 2.9	7:31 0.7	13:58 4.2	20:40 0.0
	F	13	0:24 3.6	6:18 0.1	12:46 4.4	19:18 -0.1		S	13	1:06 3.0	6:48 0.5	13:25 4.4	20:10 0.0		W	13	3:03 2.9	8:40 0.9	14:55 3.8	21:37 0.2
S	S	14	1:18 3.2	7:12 0.5	13:45 4.2	20:22 0.2		M	14	2:18 2.8	8:00 0.7	14:24 4.1	21:13 0.2		Th	14	4:12 3.0	9:58 1.0	15:56 8.6	22:31 0.3
☾	S	15	2:29 2.8	8:13 0.7	14:48 4.0	21:35 0.4	☾	Tu	15	3:36 2.8	9:06 0.9	15:30 8.9	22:20 0.3	E	F	15	5:10 3.1	11:10 1.0	17:08 8.3	23:23 0.4
	M	16	3:55 2.7	9:30 0.9	15:58 8.9	22:54 0.5		W	16	4:55 2.9	10:27 0.9	16:36 8.7	23:18 0.3		S	16	6:00 3.2	12:18 0.9	18:07 8.1	
	Tu	17	5:22 2.7	10:50 0.8	17:08 8.8			Th	17	5:58 3.1	11:40 0.8	17:40 8.6			S	17	0:12 0.4	6:48 3.4	13:20 0.9	19:04 2.9
	W	18	0:02 0.4	6:32 3.0	12:05 0.6	18:15 8.9	E	F	18	0:12 0.2	6:44 3.3	12:46 0.7	18:44 8.5	A	M	18	0:58 0.4	7:30 8.7	14:10 0.8	19:54 2.8
	Th	19	0:55 0.3	7:21 3.2	13:05 0.4	19:10 8.9		S	19	1:00 0.2	7:25 3.5	13:40 0.5	19:35 8.4		Tu	19	1:40 0.4	8:08 8.9	14:52 0.7	20:37 2.8
	F	20	1:40 0.1	8:02 3.5	13:57 0.3	20:00 8.9		S	20	1:40 0.2	8:06 8.7	14:25 0.5	20:21 8.3		W	20	2:18 0.4	8:43 4.0	15:26 0.6	21:11 2.7
E	S	21	2:20 0.0	8:37 3.7	14:42 0.2	20:50 8.9		M	21	2:20 0.2	8:38 3.9	15:05 0.4	21:00 8.2	☾	Th	21	2:51 0.5	9:18 4.1	15:57 0.5	21:43 2.7
☾	S	22	3:00 0.0	9:12 3.9	15:20 0.1	21:25 3.7	A	Tu	22	2:55 0.2	9:12 4.0	15:38 0.4	21:32 8.1	N	F	22	3:20 0.6	9:53 4.2	16:28 0.8	22:12 2.7
	M	23	3:30 0.0	9:42 3.9	15:56 0.1	21:58 3.6	☾	W	23	3:25 0.4	9:42 4.0	16:10 0.4	22:00 2.9		S	23	3:48 0.7	10:28 4.2	17:08 0.2	22:43 2.7
	Tu	24	4:00 0.2	10:10 3.9	16:25 0.2	22:30 3.4		Th	24	3:50 0.5	10:18 4.1	16:43 0.4	22:32 2.8		S	24	4:11 0.8	11:06 4.2	17:43 0.1	23:21 2.7
A	W	25	4:25 0.3	10:40 3.9	17:00 0.3	22:56 3.1		F	25	4:11 0.7	10:50 4.0	17:20 0.8	22:58 2.7		M	25	4:48 0.9	11:45 4.1	18:25 0.1	
	Th	26	4:48 0.5	11:14 3.8	17:34 0.4	23:24 2.9	N	S	26	4:34 0.9	11:26 4.0	18:00 0.8	23:34 2.7		Tu	26	0:06 2.8	5:28 0.9	12:27 4.0	19:09 0.1
	F	27	5:10 0.7	11:48 3.7	18:15 0.5	23:52 2.8		S	27	5:00 1.0	12:05 3.9	18:45 0.8			W	27	0:57 2.8	6:18 1.0	13:13 8.8	19:56 0.1
	S	28	5:33 1.0	12:25 8.6	19:00 0.6			M	28	0:18 2.6	5:32 1.1	12:47 8.7	19:32 0.4		Th	28	1:53 2.9	7:21 1.0	14:05 8.6	20:45 0.2
N	S	29	0:31 2.6	6:00 1.1	13:10 8.4	19:50 0.7		Tu	29	1:12 2.6	6:18 1.2	13:38 8.6	20:25 0.4	☾	F	29	2:53 3.0	8:37 1.0	15:02 8.4	21:36 0.3
	M	30	1:24 2.5	6:38 1.8	14:04 8.3	20:54 0.7		W	30	2:18 2.6	7:27 1.8	14:34 8.5	21:22 0.4	E	S	30	3:58 3.2	9:58 0.9	16:06 8.2	22:30 0.3
							☾	Th	31	3:28 2.7	8:55 1.3	15:35 8.4	22:16 0.3							

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The time used is Valparaiso Mean Local Civil, for the meridian 71° 39' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☾, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.													SEPTEMBER.												
Mean.	Day of— W. Mo.	Time and Height of Low Water.											Time and Height of High and Low Water.												
P	S 1	5:01	11:18	17:13	23:28	P	W 1	0:05	6:40	13:27	19:21		S 1	1:52	8:13	14:56	21:00								
	M 2	6:01	12:24	18:22		S	Th 2	1:05	7:35	14:23	20:20		○ S 2	2:41	9:00	15:34	21:39								
	Tu 3	6:25	6:57	13:28	19:25		F 3	1:58	8:27	15:12	21:10		M 3	3:26	9:42	16:10	22:15								
	W 4	1:20	7:50	14:27	20:23	○	S 4	2:50	9:15	15:55	21:56		Tu 4	4:06	10:22	16:45	22:51								
	Th 5	2:10	8:40	15:20	21:16		S 5	3:36	10:00	16:38	22:37		E W 5	4:49	11:01	17:19	23:29								
C	F 6	3:00	9:28	16:09	22:05		M 6	4:22	10:45	17:17	23:19		Th 6	5:29	11:41	17:54									
	S 7	3:47	10:16	16:56	22:54		Tu 7	5:05	11:28	17:57			F 7	6:05	6:10	12:19	18:30								
	S 8	4:34	11:08	17:42	23:42	E	W 8	5:00	5:50	12:10	18:35		S 8	6:48	6:50	12:57	19:08								
	M 9	5:22	11:51	18:27			Th 9	5:45	6:36	12:52	19:17		A S 9	7:29	7:37	13:35	19:47								
	Tu 10	6:08	6:12	12:38	18:14		F 10	6:30	7:28	13:39	20:00		C M 10	8:11	8:35	14:20	20:35								
E	W 11	1:23	7:05	13:25	20:01		S 11	7:10	8:24	14:24	20:43		Tu 11	8:19	9:50	15:33	21:40								
	Th 12	2:20	8:08	14:17	20:50		S 12	8:16	1:00	15:17	21:11		N W 12	9:25	11:15	17:16	22:53								
	F 13	3:15	9:09	15:14	21:39	A	M 13	9:19	1:10	16:26	22:35		Th 13	10:30	12:23	18:35									
	S 14	4:12	10:25	16:15	22:31		Tu 14	10:21	1:44	17:38	23:36		F 14	11:35	1:11	19:48	24:41								
	S 15	5:13	11:46	17:21	23:24		W 15	11:25	2:12	18:42			S 15	12:40	2:08	20:58									
A	M 16	6:08	12:47	18:29		N	Th 16	12:21	2:54	19:51			S 16	1:41	2:58	21:55	22:38								
	Tu 17	7:06	1:45	19:27			F 17	1:12	3:48	20:50			M 17	2:43	3:39	22:50	23:07								
	W 18	1:04	7:37	14:34	20:15		S 18	2:06	4:42	21:58		●	Tu 18	3:45	4:20	23:58									
	Th 19	1:48	8:16	15:05	20:53	●	S 19	2:48	5:05	22:51		E	W 19	4:45	5:01	24:51									
	F 20	2:25	8:58	15:35	21:25		M 20	3:20	5:45	23:41			Th 20	5:43	6:02	25:43									
●	S 21	3:00	9:30	16:06	21:57		Tu 21	3:59	6:25	24:32		P	F 21	6:41	7:01	26:35									
	S 22	3:38	10:08	16:41	22:30		W 22	4:39	7:06	25:23		S	S 22	7:35	7:55	27:30									
	M 23	4:06	10:46	17:19	23:07	E	Th 23	5:22	7:45	26:14			S 23	8:25	8:45	28:25									
	Tu 24	4:47	11:26	17:58	23:48		F 24	6:10	8:31	27:05		M	Tu 24	9:15	9:35	29:20									
	W 25	5:28	12:06	18:41			S 25	6:59	9:06	27:56		●	Tu 25	10:05	10:25	30:15									
E	Th 26	6:05	6:17	12:52	19:22	D	S 26	7:47	9:57	28:47			W 26	10:55	11:15	31:05									
	F 27	1:25	7:15	13:40	20:07	P	M 27	8:36	10:46	29:38			Th 27	11:45	12:05	32:05									
	S 28	2:22	8:23	14:34	20:57		Tu 28	9:25	11:35	30:29			F 28	12:35	12:55	32:55									
	S 29	3:25	9:34	15:39	21:59	S	W 29	10:15	12:15	31:20			S 29	1:25	1:45	33:55									
	M 30	4:38	10:57	16:55	23:02		Th 30	11:05	13:05	32:11			S 30	2:15	2:35	34:55									
	Tu 31	5:38	12:18	18:11		■	31	11:55	14:12	33:02															

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●, new moon; D, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
O	M	1	2:31 -0.1	8:41 4.4	15:05 -0.2	21:15 3.8	O	Th	1	3:40 0.1	9:42 3.6	15:40 0.1	21:52 4.1	A	S	1	4:05 0.4	9:55 2.9	15:37 0.4	22:05 4.2
	Tu	2	3:15 -0.2	9:25 4.3	15:38 -0.3	21:50 4.0		F	2	4:15 0.2	10:14 3.3	16:07 0.2	22:28 4.1		S	2	4:35 0.3	10:28 2.8	16:02 0.6	22:38 4.1
	W	3	3:54 -0.1	10:05 4.1	16:14 -0.2	22:25 4.0		S	3	4:50 0.3	10:44 3.1	16:34 0.5	23:00 4.0		M	3	5:10 0.3	10:46 2.7	16:25 0.8	23:12 4.0
	Th	4	4:32 0.0	10:40 3.9	16:46 0.0	22:58 3.9		A	S	4	5:25 0.4	11:10 2.9	16:58 0.7	23:35 3.8	Tu	4	5:47 0.3	11:20 2.6	16:46 1.0	23:50 3.9
	F	5	5:09 0.1	11:15 3.5	17:14 0.3	23:29 3.8		M	5	6:05 0.5	11:40 2.7	17:20 1.0	23:55 3.8	W	5	6:28 0.4	11:58 2.6	17:14 1.1	24:00 3.8	
A	S	6	5:43 0.4	11:44 3.2	17:42 0.5	23:55 3.8	N	Tu	6	6:12 0.3	12:16 2.5	17:40 1.2	24:00 3.8	C	Th	6	6:28 0.7	12:14 2.5	17:14 1.2	24:00 3.8
	S	7	6:05 3.6	12:25 0.6	18:10 2.9	24:00 0.8		W	7	6:55 3.5	12:45 0.7	18:05 2.4	24:00 1.4		F	7	7:12 3.5	12:40 0.4	18:46 2.5	24:00 1.3
	M	8	6:45 3.4	13:00 0.8	18:39 2.6	24:00 1.1		Th	8	7:44 3.3	13:33 0.8	19:11 2.3	24:00 1.5		S	8	8:02 3.4	13:40 0.4	19:14 2.6	24:00 1.3
	Tu	9	7:31 3.8	13:40 1.0	19:15 2.4	24:00 1.4		C	F	9	8:24 3.2	14:00 0.8	20:48 2.3	24:00 1.5	S	9	8:42 3.8	14:04 0.4	20:48 2.8	24:00 1.2
	W	10	8:26 3.1	14:20 1.1	20:15 2.2	24:00 1.5		S	10	9:05 3.2	14:35 0.6	20:55 2.6	24:00 1.3	M	10	9:06 3.2	14:40 0.4	20:55 3.2	24:00 1.0	
C	Th	11	9:32 3.1	15:00 1.0	21:00 2.2	24:00 1.5	E	S	11	9:52 3.3	15:30 0.4	21:52 3.0	24:00 1.0	E	Tu	11	10:14 3.2	15:34 0.3	21:54 3.6	24:00 1.0
	F	12	10:37 3.1	15:57 0.9	22:00 2.4	24:00 1.3		M	12	10:55 3.4	16:18 0.2	22:38 3.4	24:00 1.0		W	12	11:17 0.7	16:17 3.2	22:38 0.2	24:00 4.0
	S	13	11:40 3.3	16:50 0.6	23:00 2.8	24:00 1.0		Tu	13	11:40 0.6	16:50 3.6	23:00 0.0	24:00 3.9		Th	13	12:17 0.3	16:50 3.4	23:00 0.0	24:00 4.4
	S	14	12:40 0.9	17:40 3.6	23:50 0.3	24:00 3.2		W	14	12:40 0.2	17:40 3.7	23:50 -0.2	24:00 4.3		F	14	13:11 0.0	17:40 3.4	23:50 -0.1	24:00 4.6
	M	15	1:15 0.6	18:20 3.9	24:00 0.0	24:00 3.6		Th	15	1:24 -0.2	18:30 3.9	24:00 -0.3	24:00 4.6		S	15	1:54 -0.3	18:30 3.5	24:00 -0.2	24:00 5.1
E	Tu	16	2:01 0.2	19:10 4.1	24:50 -0.3	24:00 4.0	P	F	16	2:14 -0.5	19:16 3.8	25:00 -0.3	24:00 4.9	S	S	16	2:52 -0.5	19:50 3.4	25:00 -0.2	24:00 5.2
	W	17	2:46 -0.1	19:56 4.2	25:00 -0.4	24:00 4.3		S	17	3:08 -0.6	20:08 3.7	25:10 -0.2	24:00 5.0		M	17	3:43 -0.5	20:38 3.4	25:10 -0.1	24:00 5.2
	Th	18	3:31 -0.4	20:40 4.2	25:50 -0.4	24:00 4.5		S	18	4:04 -0.6	21:10 3.6	26:00 -0.1	24:00 5.0		Tu	18	4:34 -0.6	21:30 3.3	26:00 0.1	24:00 5.1
	F	19	4:15 -0.5	21:20 4.1	26:20 -0.3	24:00 4.6		M	19	4:55 -0.5	22:00 3.3	26:50 0.2	24:00 5.0		W	19	5:25 -0.5	22:20 3.2	26:50 0.3	24:00 5.0
	S	20	5:00 -0.5	22:00 3.9	27:00 -0.1	24:00 4.6		Tu	20	5:45 4.8	22:40 6.4	27:10 3.1	24:00 0.4		Th	20	6:15 4.8	23:00 -0.3	27:10 3.1	24:00 0.5
S	S	21	5:53 -0.4	22:40 3.5	27:40 0.2	24:00 4.6	D	W	21	6:35 4.6	23:20 -0.1	27:50 2.9	24:00 0.7	D	F	21	7:05 4.4	23:40 -0.2	28:00 3.0	24:00 0.7
	M	22	6:45 4.5	23:20 -0.2	28:20 3.2	24:00 0.5		Th	22	7:15 4.3	24:00 0.0	28:30 2.8	24:00 0.8		S	22	7:45 4.0	24:20 0.0	28:30 3.0	24:00 0.9
	Tu	23	7:37 4.3	25:00 0.1	29:00 2.8	24:00 0.7		F	23	8:05 4.0	25:40 0.2	29:50 2.9	24:00 0.9		S	23	8:35 3.6	26:00 0.2	29:50 3.1	24:00 1.0
	W	24	8:26 4.1	25:40 0.3	29:40 2.7	24:00 0.9		S	24	8:55 3.8	26:20 0.2	30:10 3.1	24:00 0.8		M	24	9:25 3.3	26:40 0.3	30:10 3.2	24:00 0.9
	Th	25	9:15 3.9	26:20 0.4	30:00 2.7	24:00 0.9		S	25	9:45 3.6	27:00 0.2	30:40 3.3	24:00 0.8		Tu	25	10:15 3.1	27:20 0.4	30:40 3.5	24:00 0.9
D	F	26	10:05 3.8	27:00 0.4	30:40 2.9	24:00 0.7	E	M	26	10:35 0.7	27:20 3.5	31:00 0.2	24:00 3.6	A	W	26	11:05 0.9	27:40 2.9	31:00 0.4	24:00 3.7
	S	27	10:55 3.9	27:40 0.2	31:20 3.3	24:00 0.8		Tu	27	11:05 0.5	27:40 3.5	31:10 0.1	24:00 3.8		Th	27	11:35 0.8	28:00 2.9	31:10 0.4	24:00 3.9
	S	28	11:45 0.5	28:20 3.9	32:00 0.0	24:00 3.6		W	28	11:35 0.4	28:20 3.3	32:00 0.1	24:00 4.0		F	28	12:05 0.7	28:40 2.8	32:00 0.4	24:00 4.1
	M	29	12:35 0.3	29:00 3.9	32:40 -0.1	24:00 3.8		Th	29	12:05 0.4	28:40 3.2	32:10 0.2	24:00 4.1		S	29	12:35 0.6	29:00 2.7	32:10 0.4	24:00 4.2
	Tu	30	1:25 0.1	29:40 3.9	33:20 -0.1	24:00 4.0		O	F	30	1:25 0.4	29:40 3.1	33:30 0.3	24:00 4.2	S	30	1:55 0.6	29:40 2.7	33:30 0.5	24:00 4.3
W	W	31	2:15 0.0	30:20 3.8	34:00 -0.1	24:00 4.1	O							N	M	31	2:25 0.4	30:00 2.7	34:00 0.6	24:00 4.3

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●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar. E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					MARCH.						
Month.	Day of W. Mo.	Time and Height of High and Low Water.				Month.	Day of W.	Time and Height of High and Low Water.			
M	1	1.42	7.40	14.04	20.10	A	Th 1	2.42	8.32	14.58	20.56
		2.2	13.1	2.3	13.3			3.4	11.6	4.1	12.0
E	Tu 2	2.34	8.30	14.54	21.00	D	F 2	2.32	9.20	15.48	21.46
		3.0	12.1	3.3	12.5			4.0	10.9	4.9	11.8
W	3	3.28	9.25	15.48	21.54	S	3	4.26	10.20	16.48	22.42
		3.7	11.2	4.1	11.7			4.6	10.4	5.3	10.9
A	Th 4	4.25	10.28	16.46	22.51	S	4	5.28	11.30	17.50	23.50
		4.8	10.6	4.8	11.2			4.7	10.3	5.3	10.9
F	5	5.25	11.37	17.46	23.52	M	5	6.28	12.36	18.51	
		4.5	10.4	5.0	11.1			4.3	10.7	4.8	
S	6	6.22	12.40	18.44		N	Tu 6	6.51	7.22	13.34	19.45
		4.3	11.5	4.6				11.4	8.5	11.5	4.0
S	7	6.48	7.14	13.30	19.34	W	7	1.45	8.10		20.34
		11.3	8.8	11.1	4.4			12.2	2.5	12.7	3.0
M	8	1.34	8.00	14.12	20.18	Th	8	2.33	8.55	15.02	21.17
		11.9	8.1	11.9	3.7			13.2	1.5	13.8	1.9
N	Tu 9	2.18	8.42	14.51	21.00	O	F 9	3.17	9.40		21.59
		12.6	2.2	12.8	2.9			14.2	0.5	15.0	0.9
C	W 10	2.58	9.22	15.28	21.40	S	10	4.00	10.20	16.25	22.40
		13.4	1.4	13.7	2.2			15.1	-0.2	15.8	0.2
Th	11	3.38	10.00	16.06	22.20	S	11	4.40	11.00	17.04	23.24
		14.1	0.7	14.0	1.5			15.8	-0.6	16.4	-0.3
F	12	4.16	10.40	16.44	23.00	E	M 12	5.21	11.42	17.45	
		14.7	0.2	15.2	1.0			16.1	-0.7	16.6	
S	13	4.56	11.20	17.25	23.40	P	Tu 13	6.04	6.08	12.28	18.28
		15.2	-0.1	15.7	0.7			-0.4	16.0	-0.4	16.5
S	14	5.36	12.00	18.05		W	14	6.48	6.47	13.07	19.12
		16.4	0.0	15.8				-0.2	15.6	0.3	15.9
M	15	6.24	6.20	12.44	18.49	C	Th 15	1.35	7.33		20.00
		0.6	15.2	0.3	15.7			0.4	14.9	1.2	15.1
E	Tu 16	1.10	7.04	13.29	19.35	F	16	2.26	8.25	14.48	20.53
		0.8	14.9	0.9	15.3			1.2	13.9	2.2	14.1
C	W 17	1.57	7.54	14.17	20.23	S	17	3.25	9.26	15.50	21.37
		1.2	14.2	1.6	14.7			2.1	12.9	2.9	13.1
Th	18	2.54	8.48	15.12	21.21	S	18	4.32	10.38		22.10
		1.7	13.5	2.4	14.0			2.7	12.2	3.6	12.5
F	19	3.51	9.50	16.17	22.23	S	M 19	5.45	12.00	18.20	
		2.3	12.5	3.0	13.3			2.9	12.0	3.6	
P	S 20	4.58	11.04	17.27		Tu	20	6.29	6.57	13.18	19.30
		2.5	12.4	3.2	13.0			12.4	2.5	12.5	3.0
S	21	6.08	12.20	18.37		W	21	1.40	8.30		20.30
		2.4	12.5	3.0				13.0	1.9	13.3	2.3
S	M 22	0.45	7.14	13.30	19.42	Th	22	2.41	8.54	15.12	21.21
		13.2	1.6	13.1	2.5			13.7	1.1	14.2	1.5
Tu	23	1.50	8.12	14.30	20.40	F	23	3.30	9.42	15.36	22.06
		13.8	1.1	13.9	1.7			14.9	0.5	14.8	1.0
W	24	2.47	9.06	15.23	21.34	S	24	4.13	10.25	16.35	22.47
		14.4	0.4	14.6	1.1			14.6	0.2	15.2	0.6
Th	25	3.40	9.56	16.09	22.20	S	25	4.52	11.05	17.12	23.27
		14.9	-0.2	15.2	0.7			14.9	0.2	15.2	0.7
F	26	4.25	10.44	16.54	23.05	M	26	5.30	11.44	18.48	
		15.2	-0.4	15.4	0.5			14.7	0.5	15.0	
S	27	5.10	11.28	17.35		Tu	27	6.04	6.05	12.30	18.22
		15.1	-0.2	15.4	0.7			1.0	14.2	1.2	14.5
S	28	5.51	12.07	18.14		W	28	6.41	6.38	12.57	18.55
		14.8	0.3	15.0				1.5	13.6	2.1	13.9
E	M 29	6.30	6.32	12.49	18.55	Th	29	0.10	6.08	12.25	18.19
		1.2	14.2	1.1	14.4			1.4	13.7	2.2	13.9
Tu	30	1.12	7.10	13.30	19.34	F	30	0.44	6.40	12.50	18.52
		1.8	13.4	2.1	13.7			2.0	13.2	3.0	13.3
W	31	1.55	7.50	14.12	20.14	S	31	1.30	7.12	13.34	19.27
		2.6	13.5	3.1	12.8			2.6	12.7	3.7	12.7

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 8.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Panama Mean Local Civil for the meridian 79° 32' W.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.								
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.				W.	Mo.				W.	Mo.						
N	S	1	2:00 3.3	7:52 12.2	14:14 4.3	20:10 12.1	D	Tu	1	2:16 3.2	8:17 12.5	14:40 4.0	20:34 12.1	F	3:44 3.0	9:50 13.1	16:20 3.1	22:16 12.4
	M	2	2:48 3.8	8:42 11.7	15:08 4.7	21:02 11.6		W	2	3:12 3.6	9:15 12.2	15:44 4.2	21:38 11.8	E	4:46 3.0	10:54 13.2	17:24 2.7	23:25 12.7
	Tu	3	3:45 4.2	9:44 11.4	16:14 4.9	22:12 11.3		Th	3	4:16 3.7	10:22 12.2	16:53 3.9	22:50 11.9	S	5:48 2.6	11:55 13.6	18:25 2.0	
	W	4	4:53 4.2	10:56 11.4	17:28 4.5	23:27 11.5		F	4	5:22 3.4	11:30 12.7	17:58 3.1		M	0:30 13.2	6:48 2.1	12:55 14.2	19:23 1.1
	Th	5	6:01 3.7	12:07 12.0	18:33 3.7		E	S	5	0:01 12.5	6:25 2.6	12:32 13.4	18:57 2.1	P	1:31 14.0	7:45 1.3	13:52 15.0	20:16 0.2
	F	6	0:37 12.2	7:01 2.8	13:09 13.1	19:30 2.5		S	6	1:02 13.4	7:20 1.7	13:28 14.3	19:51 1.0	O	2:26 14.8	8:38 0.7	14:44 15.6	21:09 -0.6
	S	7	1:35 13.4	7:55 1.6	14:02 14.4	20:20 1.2		M	7	2:00 14.4	8:12 0.8	14:20 15.3	20:42 -0.1	Th	3:17 15.5	9:30 0.1	15:35 16.1	21:58 -1.1
E	S	8	2:28 14.6	8:48 0.5	14:50 15.5	21:08 0.0	O	Tu	8	2:50 15.4	9:02 0.0	15:10 16.1	21:29 -1.0	S	4:07 16.0	10:19 -0.1	16:24 16.2	22:47 -1.3
O	M	9	3:14 15.7	9:29 -0.4	15:35 16.4	21:54 -1.0		W	9	3:36 16.1	9:50 -0.5	15:55 16.6	22:15 -1.5	S	4:55 16.0	11:08 0.0	17:12 16.0	23:35 -1.0
P	Tu	10	4:00 16.4	10:13 -1.0	16:19 17.0	22:37 -1.5		Th	10	4:24 16.4	10:37 -0.7	16:40 16.7	23:02 -1.5	S	5:45 15.8	11:58 0.4	18:01 15.4	
	W	11	4:43 16.7	10:57 -1.1	17:02 17.1	23:23 -1.5	S	F	11	5:10 16.4	11:23 -0.4	17:28 16.4	23:50 -1.2	M	0:24 -0.3	6:34 15.3	12:50 1.0	18:52 14.6
	Th	12	5:27 16.6	11:42 -0.8	17:47 16.8			S	12	5:58 16.0	12:12 0.2	18:16 15.7		Tu	1:14 0.6	7:26 14.5	13:42 1.8	19:46 13.6
	F	13	0:07 -1.2	6:12 16.1	12:30 0.0	18:32 16.1		S	13	0:40 -0.4	6:48 15.3	13:09 1.0	19:07 14.8	C	2:08 1.6	8:20 13.7	14:40 2.6	20:43 12.7
S	S	14	0:55 -0.3	7:00 15.3	13:19 1.0	19:22 15.0		M	14	1:31 0.6	7:42 14.3	14:00 2.0	20:04 13.6	Th	3:05 2.6	9:18 12.9	15:39 3.2	21:48 11.9
C	S	15	1:48 0.7	7:55 14.2	14:14 2.1	20:18 13.7	C	Tu	15	2:28 1.7	8:40 13.4	15:01 2.9	21:05 12.6	E	4:05 3.4	10:20 12.3	16:41 3.7	22:56 11.3
	M	16	2:45 1.9	8:55 13.1	15:18 3.1	21:22 12.6		W	16	3:30 2.7	9:46 12.6	16:08 3.5	22:18 11.8	S	5:05 3.9	11:20 12.0	17:44 3.8	
	Tu	17	3:52 2.8	10:05 12.3	16:30 3.8	22:39 11.9		Th	17	4:38 3.3	10:58 12.1	17:18 3.8	23:36 11.5	S	0:08 11.1	6:05 4.1	12:22 11.9	18:40 3.7
	W	18	5:05 3.4	11:25 12.0	17:45 3.9		E	F	18	5:44 3.6	12:06 12.1	18:24 3.6		A	1:07 11.3	7:02 4.0	13:15 12.0	19:31 3.3
	Th	19	0:02 11.7	6:16 3.3	12:40 12.2	18:55 3.5		S	19	0:46 11.7	6:47 3.5	13:05 12.5	19:20 8.7	Tu	1:55 11.6	7:50 3.8	14:00 12.3	20:17 2.8
	F	20	1:15 12.2	7:20 3.0	13:42 12.8	19:52 2.9		S	20	1:45 12.1	7:40 3.2	13:56 12.7	20:08 2.7	W	2:38 12.0	8:33 3.5	14:40 12.7	20:57 2.3
E	S	21	2:12 12.8	8:12 2.5	14:30 13.4	20:40 2.2		M	21	2:30 12.5	8:25 2.9	14:38 13.0	20:50 2.2	●	3:11 12.5	9:15 3.1	15:15 13.1	21:34 1.8
	S	22	2:58 13.3	8:57 2.0	15:10 13.8	21:20 1.7	A	Tu	22	3:10 12.8	9:07 2.7	15:15 13.4	21:28 1.8	N	3:44 13.1	9:50 2.7	15:50 13.5	22:11 1.3
●	M	23	3:36 13.6	9:37 1.8	15:46 14.1	21:58 1.3	●	W	23	3:41 13.2	9:44 2.5	15:45 13.6	22:02 1.4	S	4:17 13.6	10:27 2.3	16:25 13.8	22:50 1.0
	Tu	24	4:09 13.8	10:13 1.6	16:18 14.2	22:31 1.1		Th	24	4:13 13.4	10:19 2.3	16:17 13.8	22:37 1.2	S	4:52 14.0	11:05 2.1	17:00 14.1	23:28 0.9
A	W	25	4:40 13.9	10:46 1.7	16:47 14.2	23:05 1.1		F	25	4:44 13.6	10:52 2.3	16:50 13.8	23:13 1.2	M	5:29 14.4	11:44 1.9	17:40 14.2	
	Th	26	5:10 13.8	11:19 2.0	17:18 14.0	23:40 1.3	N	S	26	5:15 13.7	11:28 2.3	17:22 13.8	23:50 1.4	Tu	0:06 1.0	6:09 14.5	12:25 1.9	18:20 14.1
	F	27	5:40 13.6	11:54 2.3	17:50 13.8			S	27	5:50 13.8	12:06 2.5	18:00 13.7		W	0:47 1.2	6:50 14.5	13:10 2.0	19:05 13.9
	S	28	0:15 1.7	6:12 13.5	12:28 2.8	18:22 13.5		M	28	0:27 1.6	6:28 13.8	12:45 2.7	18:38 13.5	Th	1:32 1.6	7:36 14.4	14:00 2.1	19:52 13.6
N	S	29	0:51 2.2	6:48 13.2	13:05 3.3	18:58 13.1		Tu	29	1:09 2.0	7:10 13.6	13:30 2.9	19:21 13.1	D	2:19 2.1	8:26 14.1	14:52 2.3	20:45 13.2
	M	30	1:32 2.7	7:28 12.9	13:48 3.7	19:42 12.6		W	30	1:52 2.5	7:57 13.4	14:20 3.1	20:12 12.8	S	3:13 2.4	9:20 13.8	15:49 2.4	21:45 12.9
	D	Th	31	2:44 2.8	8:51 13.2	15:17 3.2	21:12 12.5											

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 8.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Panama Mean Local Civil, for the meridian 79° 32' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon at apogee or perigee.

JULY.							AUGUST.							SEPTEMBER.							
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				
	W.	Mo.						W.	Mo.						W.	Mo.					
P	S	1	4:12	10:20	16:51	22:35	P	W	1	5:58	12:05	18:36			S	1	1:45	7:55	14:08	20:24	
			2.7	13.5	2.4	12.7				3.0	13.2	2.0				13.3	2.3	13.6	1.2		
	M	2	5:16	11:23	17:55		S	Th	2	0:50	7:04	13:14	19:38	○	S	2	2:42	8:50	15:04	21:14	
			2.8	13.5	2.1					12.9	2.6	13.6	1.3				14.2	1.5	14.4	0.5	
	Tu	3	0:00	6:20	12:28	18:56		F	3	1:55	8:05	14:15	20:35		M	3	3:30	9:38	15:50	21:59	
S	W	4	1:07	7:21	13:29	19:55	○	S	4	2:52	9:02	15:10	21:28		Tu	4	4:12	10:22	16:30	22:40	
			13.4	2.0	13.29	0.7				14.4	1.2	14.8	0.0			15.4	0.4	15.2	0.0		
	Th	5	2:06	8:18	14:27	20:50		S	5	3:41	9:54	16:00	22:16	E	W	5	4:51	11:04	17:10	23:21	
			14.2	1.4	15.0	0.0				15.1	0.6	15.3	—0.4			15.5	0.3	15.1	0.3		
	F	6	3:03	9:14	15:20	21:41		M	6	4:27	10:40	16:46	23:00		Th	6	5:30	11:44	17:49		
○	S	7	3:54	10:04	16:10	22:30		Tu	7	5:12	11:25	17:32	23:45		F	7	0:00	6:05	12:22	18:24	
			15.4	0.4	15.7	—0.9				15.6	0.4	15.2	—0.1			0.8	14.8	1.2	13.9		
	S	8	4:42	10:55	17:00	23:18	E	W	8	5:55	12:09	18:14			S	8	0:39	6:42	13:02	19:00	
			15.7	0.4	15.6	—0.7				15.3	0.7	14.7				1.7	14.0	2.0	13.0		
	M	9	5:30	11:42	17:46			Th	9	0:28	6:36	12:52	18:56	A	S	9	1:29	7:18	13:44	19:38	
E	Tu	10	0:08	6:17	12:33	18:34		F	10	1:11	7:18	13:38	19:40	○	M	10	2:02	7:57	14:29	20:21	
			—0.2	15.3	0.9	14.6				1.5	14.1	2.0	12.9			3.7	12.3	3.7	11.4		
	W	11	0:54	7:04	13:20	19:23	○	S	11	1:55	8:00	14:24	20:24		Tu	11	2:48	8:40	15:19	21:12	
			0.5	14.7	1.5	13.8				2.6	13.2	2.9	12.0			4.7	11.5	4.3	10.8		
	Th	12	1:42	7:52	14:10	20:15		S	12	2:48	8:45	15:15	21:13	N	W	12	3:43	9:34	16:18	22:16	
C	F	13	2:32	8:42	15:04	21:06		A	M	13	3:34	9:35	16:10	22:10		Th	13	4:46	10:42	17:23	23:29
			2.5	13.2	3.0	11.9				4.5	11.5	4.8	10.5			5.5	10.6	4.7	10.5		
	S	14	3:25	9:35	16:00	22:06		Tu	14	4:30	10:32	17:10	23:18		F	14	5:52	11:52	18:25		
			3.5	12.4	3.7	11.1				5.1	10.9	4.6	10.2			6.1	10.8	4.1			
	S	15	4:20	10:30	16:58	23:14		W	15	5:32	11:36	18:09			S	15	0:35	6:52	12:56	19:18	
A			4.2	11.7	4.1	10.6				5.3	10.8	4.4				11.2	4.3	11.6	3.2		
	M	16	5:20	11:31	17:57		N	Th	16	0:25	6:32	12:38	19:04		S	16	1:29	7:43	13:49	20:07	
			4.7	11.2	4.2					10.5	5.0	11.1	3.9			12.2	3.2	12.7	2.1		
	Tu	17	0:20	6:18	12:28	18:52		F	17	1:20	7:26	13:32	19:53		M	17	2:15	8:29	14:35	20:50	
			10.6	4.8	11.3	4.0				11.2	8.4	11.8	3.0			13.6	2.0	13.8	1.0		
N	W	18	1:15	7:12	13:20	19:40		S	18	2:06	8:14	14:19	20:37	●	Tu	18	2:58	9:13	15:17	21:34	
			10.8	4.6	11.6	3.4				12.1	3.4	12.7	2.1			14.8	0.8	15.0	0.1		
	Th	19	2:00	8:00	14:06	20:25	●	S	19	2:46	8:57	15:00	21:20	E	W	19	3:38	9:55	15:58	22:14	
			11.4	4.1	12.2	2.7				13.2	2.4	13.6	1.1			15.9	—0.2	15.9	—0.6		
	F	20	2:40	8:44	14:47	21:05		M	20	3:26	9:39	15:40	22:00		Th	20	4:17	10:36	16:38	22:55	
●			12.2	3.4	12.8	2.0				14.3	1.4	14.5	0.3			16.6	—0.9	16.4	—0.9		
	S	21	3:16	9:24	15:25	21:45		Tu	21	4:05	10:20	16:20	22:40	P	F	21	4:58	11:18	17:20	23:37	
			13.0	2.7	13.5	1.3				15.3	0.6	15.3	—0.2			16.9	—1.1	16.4	—0.7		
	S	22	3:52	10:04	16:02	22:25		W	22	4:44	11:00	17:00	23:20		S	22	5:40	12:02	18:03		
			13.9	2.0	14.1	0.7				15.9	0.0	15.7	—0.5			16.8	—0.9	16.1			
E	M	23	4:30	10:42	16:42	23:05	E	Th	23	5:24	11:41	17:40			S	23	0:22	6:25	12:47	18:48	
			14.6	1.5	14.6	0.4				16.3	—0.2	15.8				—0.1	16.3	—0.2	15.4		
	Tu	24	5:08	11:22	17:21	23:44		F	24	0:00	6:04	12:25	18:22		M	24	1:08	7:12	13:37	19:39	
			15.1	1.0	14.9	0.2				—0.3	16.3	—0.1	15.5			0.7	15.4	0.6	14.4		
	W	25	5:42	12:05	18:02			S	25	0:45	6:48	13:10	19:09	○	Tu	25	2:00	8:03	14:33	20:37	
D			15.4	0.8	15.0					0.2	15.9	0.3	15.0			1.8	14.3	1.7	13.4		
	Th	26	0:24	6:28	12:48	18:45	○	S	26	1:30	7:35	14:00	19:58		W	26	3:00	9:05	15:38	21:46	
			0.4	15.5	0.9	14.8				0.9	15.2	1.0	14.2			2.8	18.2	2.5	12.5		
	F	27	1:08	7:14	13:34	19:30	P	M	27	2:20	8:26	14:54	20:55		Th	27	4:12	10:18	16:51	23:06	
			0.8	15.3	1.1	14.4				1.9	14.4	1.8	13.3			3.5	12.4	3.0	12.1		
D	S	28	1:55	8:00	14:25	20:20		Tu	28	3:19	9:25	15:59	22:02		F	28	5:28	11:40	18:04		
			1.4	14.9	1.5	13.8				2.7	13.5	2.4	12.6			3.6	12.1	2.9			
	S	29	2:45	8:52	15:20	21:19	S	W	29	4:28	10:35	17:09	23:20		S	29	0:25	6:42	12:58	19:11	
			2.0	14.2	2.0	13.2				3.3	12.7	2.7	12.2			12.4	3.2	12.6	2.4		
	M	30	3:44	9:50	16:22	22:24		Th	30	5:40	11:50	18:20			S	30	1:32	7:43	14:00	20:08	
E			2.6	13.6	2.4	12.7				3.4	12.5	2.6				13.1	2.5	13.2	1.7		
	Tu	31	4:48	10:56	17:30	23:38		F	31	0:38	6:52	13:05	19:25								
			3.0	13.2	2.4	12.5				12.5	3.1	12.9	2.0								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 8.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Panama Mean Local Civil, for the meridian 79° 32' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.				NOVEMBER.				DECEMBER.			
Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.
	W.	Mo.			W.	Mo.			W.	Mo.	
F	M	1	2:26 8:35 14:52 20:57 18.9 1.7 14.0 1.1	Th	1	8:28 9:40 15:54 21:54 14.3 1.0 14.1 1.5	A	S	1	3:35 9:51 16:04 22:08 13.7 1.4 13.4 2.3	
	Tu	2	3:11 9:21 15:34 21:39 14.6 1.0 14.5 0.7	F	2	4:00 10:15 16:25 22:30 14.4 0.8 14.1 1.6	S	2	4:09 10:25 16:35 22:40 13.8 1.2 13.6 2.3		
	W	3	3:50 10:02 16:13 22:18 15.0 0.6 14.8 0.6	S	3	4:33 10:50 16:56 23:05 14.3 0.9 13.9 1.9	N	M	3	4:38 11:00 17:05 23:15 13.8 1.2 13.7 2.4	
	Th	4	4:27 10:39 16:48 22:55 15.1 0.5 14.6 0.8	A	S	4	5:06 11:26 17:28 23:40 14.1 1.2 13.7 2.3	Tu	4	5:10 11:36 17:38 23:50 13.7 1.3 13.7 2.5	
	F	5	5:00 11:16 17:22 23:32 14.9 0.7 14.3 1.3	M	5	5:37 12:00 18:00 . . . 13.8 1.6 13.4 . . .	W	5	5:44 12:14 18:12 . . . 13.6 1.6 13.7 . . .		
A	S	6	5:34 11:53 17:55 . . . 14.5 1.2 13.8 . . .	N	Tu	6	0:14 6:09 12:38 18:35 2.8 13.4 2.2 13.0	Th	6	0:28 6:21 12:30 18:51 2.7 13.4 2.1 13.5	
	S	7	0:07 6:06 12:30 18:28 2.1 13.9 1.8 13.2	W	7	0:52 6:45 13:15 19:13 3.4 12.8 2.8 12.7	F	7	1:10 7:00 13:34 19:35 3.0 13.0 2.5 13.3		
	M	8	0:42 6:39 13:07 19:03 2.9 13.2 2.6 12.5	Th	8	1:34 7:24 14:00 20:00 3.9 12.3 3.4 12.3	C	S	8	1:56 7:46 14:20 20:26 3.2 12.7 3.0 13.0	
	Tu	9	1:23 7:14 13:47 19:42 3.7 12.5 3.4 11.9	C	F	9	2:23 8:14 14:51 20:56 4.3 11.8 3.9 12.0	S	9	2:50 8:40 15:14 21:20 3.5 12.3 3.3 12.9	
	W	10	2:04 7:55 14:34 20:30 4.5 12.2 4.0 11.4	S	10	3:24 9:14 15:55 21:58 4.5 11.5 4.0 11.9	E	M	10	3:52 9:44 16:15 22:22 3.5 12.1 3.4 12.8	
C	Th	11	2:57 8:47 15:32 21:30 5.0 11.2 4.5 11.0	S	11	4:31 10:25 17:00 23:05 4.3 11.4 3.8 12.2	Tu	11	4:55 10:54 17:20 23:26 3.2 12.2 3.2 13.1		
	F	12	4:08 9:53 16:38 22:40 5.2 11.1 4.5 11.0	M	12	5:38 11:36 18:00 . . . 3.7 11.9 3.2 . . .	W	12	5:58 12:00 18:20 . . . 2.5 12.7 2.6 . . .		
	S	13	5:12 11:08 17:48 23:50 4.9 11.0 4.1 11.6	E	Tu	13	0:07 6:35 12:40 18:58 12.9 2.7 12.8 2.3	Th	13	0:28 6:57 13:04 19:20 13.6 1.7 13.5 1.9	
	S	14	6:15 12:18 18:42 . . . 4.1 11.7 3.3 . . .	W	14	1:02 7:28 13:35 19:50 13.8 1.5 13.9 1.3	F	14	1:25 7:52 14:01 20:14 14.5 0.6 14.4 1.0		
	M	15	0:50 7:11 13:17 19:33 12.6 2.9 12.8 2.2	Th	15	1:55 8:18 14:25 20:38 14.9 0.3 14.9 0.4	P	S	15	2:20 8:45 14:54 21:05 15.3 -0.3 15.3 0.3	
E	Tu	16	1:40 8:00 14:06 20:20 13.8 1.7 14.1 1.0	P	F	16	2:44 9:05 15:13 21:25 15.8 -0.7 15.8 -0.2	S	16	3:10 9:35 15:42 21:55 16.0 -1.0 15.9 -0.2	
	W	17	2:26 8:45 14:51 21:05 15.0 0.4 15.2 0.1	S	17	3:30 9:52 15:58 22:12 16.5 -1.4 16.4 -0.6	M	17	4:00 10:24 16:30 22:45 16.3 -1.4 16.3 -0.3		
	Th	18	3:10 9:30 15:34 21:48 16.0 -0.6 16.0 -0.6	S	18	4:15 10:38 16:45 22:58 16.8 -1.6 16.6 -0.6	Tu	18	4:48 11:10 17:18 23:34 16.3 -1.4 16.3 -0.2		
	F	19	3:53 10:13 16:17 22:32 16.7 -1.4 16.6 -0.9	S	M	19	5:00 11:25 17:30 23:45 16.7 -1.5 16.4 -0.2	W	19	5:35 11:58 18:05 . . . 16.0 -1.0 16.0 . . .	
	S	20	4:34 10:56 17:00 23:15 17.0 -1.5 16.6 -0.7	Tu	20	5:48 12:12 18:20 . . . 16.2 -0.9 15.8 . . .	Th	20	0:21 6:24 12:47 18:56 0.3 15.4 -0.2 15.3		
S	S	21	5:18 11:41 17:45 . . . 17.1 -1.3 16.4 . . .	W	21	0:35 6:38 13:03 19:10 0.5 15.3 0.0 15.0	F	21	1:14 7:16 13:39 19:50 1.0 14.4 0.8 14.4		
	M	22	0:00 6:04 12:28 18:32 -0.2 16.3 -0.6 15.6	D	Th	22	1:30 7:30 13:57 20:06 1.5 14.2 1.2 14.0	S	22	2:08 8:12 14:38 20:44 1.9 13.4 2.0 13.5	
	Tu	23	0:50 6:55 13:19 19:24 0.6 15.4 0.3 14.7	F	23	2:29 8:34 14:58 21:10 2.4 13.1 2.3 13.1	E	S	23	3:08 9:12 15:32 21:46 2.7 12.4 2.9 12.7	
	W	24	1:44 7:47 14:14 20:24 1.7 14.2 1.5 13.6	S	24	3:35 9:42 16:06 22:21 3.1 12.2 3.0 12.5	M	24	4:10 10:20 16:35 22:50 3.3 11.6 3.7 12.2		
	Th	25	2:46 8:50 15:20 21:32 2.7 13.0 2.5 12.7	S	25	4:45 11:00 17:14 23:34 3.5 11.7 3.4 12.3	Tu	25	5:16 11:36 17:40 23:58 3.7 11.2 4.1 11.9		
D	F	26	3:55 10:12 16:31 22:48 3.4 12.2 3.1 12.2	E	M	26	5:55 12:16 18:20 . . . 3.5 11.7 3.4 . . .	W	26	6:20 12:47 18:42 . . . 3.7 11.2 4.1 . . .	
	S	27	5:11 11:25 17:44 . . . 3.7 11.9 3.2 . . .	Tu	27	0:40 6:56 13:22 19:18 12.6 3.1 12.1 3.2	Th	27	1:01 7:16 13:48 19:38 11.9 3.4 11.5 3.9		
	S	28	0:06 6:25 12:45 18:50 12.4 3.4 12.2 2.9	W	28	1:36 7:48 14:15 20:09 12.8 2.6 12.6 2.9	A	F	28	1:51 8:04 14:32 20:26 12.2 3.0 12.0 3.5	
	M	29	1:12 7:25 13:46 19:45 12.9 2.7 12.8 2.4	Th	29	2:23 8:32 14:58 20:51 13.2 2.1 12.9 2.6	S	29	2:35 8:48 15:10 21:06 12.7 2.5 12.5 3.2		
	Tu	30	2:05 8:15 14:35 20:35 13.6 2.0 13.4 1.9	O	F	30	3:02 9:14 15:38 21:32 13.5 1.6 13.2 2.4	O	S	30	3:12 9:26 15:42 21:44 13.0 1.9 12.9 2.8
O	W	31	2:49 8:58 15:16 21:17 14.0 1.4 13.9 1.6					N	M	31	3:45 10:02 16:14 22:19 13.4 1.4 13.4 2.4

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 8.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Panama Mean Local Civil, for the meridian 79° 32' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.									
Mo.	Day of W. Mo.	Time and Height of High and Low Water.							
D	M 1	2:16	8:40	13:15	19:59	D	Th 1	2:38	10:06
		4.0	2.7	8.6	1.4			4.2	2.5
	Tu 2	3:17	10:10	14:40	20:58		F 2	3:40	11:44
A	W 3	4:14	11:29	15:35	22:00	A	S 3	4:40	12:34
		4.4	2.3	2.9	2.1			4.5	1.5
	Th 4	5:00	12:26	16:03	22:53		S 4	5:14	13:39
N	F 5	5:40	13:00	16:02	23:40	N	M 5	5:22	13:39
		4.8	1.3	8.0	2.5			5.2	0.3
	S 6	6:10	13:30	16:50			Tu 6	6:47	14:08
O	S 7	6:22	14:07	17:08	20:24	O	W 7	7:26	14:08
		2.5	6.4	0.3	3.5			2.4	5.9
	M 8	6:56	7:18	14:32	20:55		Th 8	8:08	15:10
C	Tu 9	7:50	15:00	21:27		C	F 9	8:52	15:43
		2.4	5.9	-0.4	8.7			1.9	6.2
	W 10	8:24	15:33	22:00			S 10	9:32	16:17
E	Th 11	9:00	16:06	22:34		E	S 11	10:16	16:50
		2.8	6.1	-0.7	8.9			1.4	5.8
	F 12	9:38	16:41	23:09			M 12	11:00	17:27
P	S 13	10:20	17:18	23:47		P	Tu 13	11:51	18:10
		2.1	6.8	-0.3	4.0			1.4	4.7
	S 14	11:03	17:58				W 14	12:38	18:50
H	M 15	11:43	18:41			H	Th 15	1:26	19:39
		4.2	2.2	4.8	0.6			4.7	1.5
	Tu 16	12:22	19:00	19:00			F 16	2:34	20:31
C	W 17	1:00	19:15	19:15		C	S 17	3:58	21:26
		4.4	2.2	4.1	1.2			4.8	1.3
	Th 18	2:21	20:00	20:00			S 18	5:09	22:39
P	F 19	3:00	20:40	20:40		P	M 19	6:12	23:27
		4.6	2.1	8.6	1.8			2.6	5.6
	S 20	5:28	12:47	19:07			Tu 20	7:08	24:00
S	S 21	6:02	13:37	20:00		S	W 21	7:48	24:00
		2.3	5.9	-0.3	8.8			2.0	6.0
	M 22	6:57	14:20	20:47			Th 22	8:28	24:00
●	Tu 23	7:52	15:00	21:26		●	F 23	9:08	24:00
		2.1	6.4	-1.0	4.1			1.6	5.8
	W 24	8:33	15:39	22:04			S 24	9:48	24:00
●	Th 25	9:12	16:15			●	S 25	10:17	24:00
		2.0	6.2	-0.8	4.2			1.6	5.0
	F 26	9:54	16:48	23:15			M 26	10:48	24:00
E	S 27	10:32	17:20	23:47		E	Tu 27	11:28	24:00
		2.1	5.4	0.0	4.2			1.8	4.1
	S 28	11:09	17:48				W 28	11:52	24:00
A	M 29	11:48	18:17			A	Th 29	12:38	24:00
		4.8	2.4	4.2	1.1			1.9	3.6
	Tu 30	12:25	18:54				F 30	1:17	24:00
A	W 31	1:07	19:27			A	S 31	1:58	24:00
		4.2	2.6	3.0	2.1			1.5	2.9

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 2.9 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian W.; 0 is midnight, 12 is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.											
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.								
	W.	Mo.				W.	Mo.				W.	Mo.									
N	S	1	0:42 4.8	8:47 1.5	17:35 3.0	19:46 2.9	D	Tu	1	1:13 4.8	9:12 1.1	16:46 3.5	21:37 2.9	F	1	4:02 3.8	10:13 1.2	17:09 4.8	23:32 1.7		
	M	2	2:08 4.2	10:20 1.3	18:13 3.4	21:58 3.1		W	2	3:04 4.0	10:21 1.0	17:23 3.9	23:03 2.7	E	S	2	5:25 4.0	11:25 1.3	17:50 5.2		
	Tu	3	3:55 4.3	11:25 1.0	18:33 3.7	23:30 2.9		Th	3	4:40 4.2	11:18 0.9	18:00 4.4			S	3	0:25 0.9	6:32 4.2	12:14 1.4	18:30 5.7	
	W	4	5:13 4.5	12:13 0.6	18:55 4.1			F	4	0:00 2.0	5:41 4.4	12:04 0.9	18:31 5.0		M	4	1:15 0.2	7:30 4.3	12:58 1.5	19:12 6.2	
	Th	5	0:22 2.3	6:15 4.9	12:53 0.3	19:22 4.6	E	S	5	0:47 1.2	6:47 4.7	12:56 0.9	19:08 5.4	P	Tu	5	2:04 -0.5	8:22 4.3	13:40 1.7	19:52 6.3	
	F	6	1:06 1.7	7:08 5.3	13:29 0.2	19:48 5.1		S	6	1:26 0.6	7:38 5.0	13:34 0.9	19:45 5.8	○	W	6	2:50 -0.9	9:12 4.3	14:20 1.9	20:34 6.6	
	S	7	1:47 1.0	7:53 5.5	14:07 0.2	20:19 5.4		M	7	2:11 -0.1	8:27 5.0	14:11 1.1	20:20 6.1		Th	7	3:38 -1.1	10:03 4.2	15:04 2.1	21:17 6.6	
E	S	8	2:28 0.5	8:38 5.6	14:46 0.3	20:55 5.6	○	Tu	8	2:56 -0.5	9:15 4.8	14:48 1.3	20:57 6.3	S	F	8	4:25 -1.1	10:56 4.0	15:50 2.3	22:00 6.3	
	M	9	3:07 0.1	9:20 5.6	15:22 0.7	21:27 5.7	P	W	9	3:43 -0.7	10:05 4.6	15:27 1.6	21:36 6.3		S	9	5:14 -0.9	11:52 3.9	16:40 2.6	22:44 6.9	
	Tu	10	3:47 -0.1	10:03 5.2	15:57 1.1	22:08 5.8		Th	10	4:32 -0.8	11:00 4.2	16:07 2.0	22:18 6.1		S	10	6:05 -0.5	12:55 3.8	17:39 2.8	23:40 6.3	
	W	11	4:35 -0.2	10:53 4.6	16:29 1.6	22:42 5.7	S	F	11	5:23 -0.6	12:00 3.9	16:54 2.4	23:05 5.8		M	11	6:58 -0.1	13:59 3.9	18:54 2.9		
	Th	12	5:38 0.1	11:51 4.1	17:14 2.0	23:26 5.5		S	12	6:20 -0.3	13:12 3.6	17:52 2.7	23:58 5.3	☾	Tu	12	0:40 4.6	7:52 0.4	15:00 4.1	20:24 2.3	
	F	13	6:30 0.1	13:04 3.6	18:05 2.5		☾	S	13	7:24 0.0	14:35 3.7	19:11 2.9			W	13	1:54 4.0	8:50 0.9	15:56 4.3	21:06 2.6	
S	S	14	0:18 5.2	7:43 0.4	14:48 3.4	19:18 2.9		☾	M	14	1:05 4.7	8:33 0.4	15:58 3.8	21:02 2.9	E	Th	14	3:24 3.5	9:43 1.4	16:48 4.6	22:04 2.1
☾	S	15	1:27 4.8	9:10 0.6	16:33 3.7	21:12 2.9		Tu	15	2:30 4.3	9:45 0.6	17:01 4.3	22:43 2.9		F	15	4:50 3.4	10:39 1.7	17:30 4.9		
	M	16	2:57 4.5	10:33 0.5	17:43 4.1	22:58 2.8		W	16	4:07 4.0	10:48 0.9	17:43 4.6	23:53 2.2		S	16	0:27 1.7	6:06 3.4	11:34 1.9	18:16 5.0	
	Tu	17	4:30 4.4	11:37 0.5	18:30 4.4			Th	17	5:27 4.0	11:39 1.1	18:19 4.9			S	17	1:10 1.3	7:02 3.4	12:14 2.1	19:40 5.2	
	W	18	0:10 2.3	5:48 4.5	12:27 0.5	19:05 4.7	E	F	18	0:45 1.6	6:29 4.0	12:24 1.3	18:51 5.1	A	M	18	1:45 0.9	7:50 3.4	12:45 2.2	19:54 5.4	
	Th	19	0:59 1.8	6:48 4.7	13:08 0.6	19:32 5.0		S	19	1:24 1.2	7:20 4.0	13:00 1.5	19:20 5.2		Tu	19	2:16 0.5	8:28 3.4	13:12 2.4	19:52 5.3	
	F	20	1:38 1.3	7:36 4.8	13:44 0.9	19:57 5.1		S	20	1:58 0.9	8:00 4.0	13:30 1.7	19:42 5.3		W	20	2:45 0.2	9:00 3.4	13:35 2.5	19:58 5.7	
E	S	21	2:13 1.0	8:14 4.8	14:15 1.1	20:24 5.2		M	21	2:30 0.6	8:36 3.9	13:52 1.9	20:02 5.4	●	Th	21	3:12 0.0	9:37 3.4	14:01 2.5	20:27 5.7	
●	S	22	2:41 0.8	8:47 4.6	14:37 1.3	20:45 5.2	●	Tu	22	2:57 0.4	9:09 3.8	14:12 2.1	20:25 5.5	N	F	22	3:42 -0.2	10:10 3.4	14:34 2.6	20:54 5.8	
	M	23	3:10 0.7	9:19 4.3	14:57 1.6	21:04 5.3		W	23	3:25 0.2	9:42 3.6	14:30 2.3	20:49 5.6		S	23	4:12 -0.3	10:44 3.4	15:06 2.6	21:24 5.9	
	Tu	24	3:38 0.6	9:50 4.0	15:14 1.9	21:24 5.2		Th	24	3:55 0.1	10:15 3.4	14:54 2.4	21:15 5.6		S	24	4:45 -0.2	11:20 3.4	15:48 2.6	21:56 5.9	
A	W	25	4:08 0.6	10:21 3.7	15:32 2.1	21:47 5.2		F	25	4:25 0.1	10:52 3.3	15:18 2.5	21:44 5.5		M	25	5:21 -0.1	11:58 3.5	16:35 2.7	22:46 5.3	
	Th	26	4:38 0.6	10:52 3.5	15:48 2.3	22:08 5.2	N	S	26	5:00 0.2	11:30 3.3	15:46 2.7	22:14 5.3		Tu	26	6:02 0.2	12:45 3.7	17:35 2.7	23:44 5.4	
	F	27	5:12 0.7	11:27 3.2	16:07 2.5	22:34 5.0		S	27	5:40 0.3	12:20 3.2	16:27 2.9	22:52 5.1		W	27	6:48 0.5	13:37 4.0	18:50 2.8		
N	S	28	5:55 0.8	12:18 3.1	16:38 2.7	23:07 4.8		M	28	6:26 0.4	13:21 3.2	17:30 2.9	23:41 4.8		Th	28	0:36 4.3	7:36 0.8	14:31 4.2	20:27 2.6	
	S	29	6:46 0.9	13:38 3.0	17:18 2.9	23:56 4.6		Tu	29	7:20 0.6	14:28 3.5	19:03 3.0		☾	F	29	1:55 3.9	8:36 1.2	15:29 4.5	21:36 2.7	
	M	30	7:53 1.1	15:33 3.1	18:56 3.0		☾	W	30	0:49 4.4	8:20 0.8	15:30 3.8	21:00 2.9	E	S	30	3:37 3.6	9:42 1.6	16:24 4.8	23:14 1.5	
								Th	31	2:24 4.0	9:23 1.0	16:24 4.3	22:31 2.4								

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The time used is Pacific Standard, 120th Meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st. quar.; ○, full moon; ☾, 3d. quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										AUGUST.									
Mo.	Day of— W. Mo.	Time and Height of High and Low Water.				Mo.	Day of— W. Mo.	Time and Height of High and Low Water.				Mo.	Day of— W. Mo.	Time and Height of High and Low Water.				Mo.	Day of— W. Mo.
S	1	5:10	10:44	17:15	5.8	W	1	1:07	7:30	12:24	18:40	S	1	2:17	8:40	14:05	20:09	S	1
M	2	0:15	6:25	11:40	5.8	Th	2	1:55	8:20	13:16	19:28	○ S	2	2:57	9:10	14:45	20:50	○ S	2
Tu	3	1:10	7:27	12:32	5.8	F	3	2:36	9:00	14:04	20:11	M	3	2:23	9:42	15:24	21:28	M	3
W	4	2:00	8:20	13:20	5.8	○ S	4	3:16	9:40	14:50	20:58	Tu	4	3:51	10:09	16:01	22:06	Tu	4
Th	5	2:47	9:10	14:08	5.8	S	5	3:54	10:17	15:30	21:40	E W	5	4:20	10:34	16:40	22:43	E W	5
○ F	6	3:32	9:56	14:54	5.8	M	6	4:29	10:54	16:16	22:20	Th	6	4:54	11:05	17:15	23:19	Th	6
S	7	4:15	10:42	15:38	5.8	Tu	7	5:05	11:28	17:02	23:01	F	7	5:16	11:30	17:56	23:56	F	7
S	8	4:58	11:28	16:23	5.8	E W	8	5:35	12:00	17:53	23:44	S	8	5:35	12:04	18:51	24:43	S	8
M	9	5:39	12:16	17:04	5.8	Th	9	6:05	12:40	18:40	24:28	A S	9	6:02	12:42	19:42	25:36	A S	9
Tu	10	6:22	13:04	17:50	5.8	F	10	6:32	13:17	19:28	25:14	○ M	10	6:45	13:40	20:36	26:24	○ M	10
W	11	7:03	13:52	18:40	5.8	○ S	11	7:02	14:04	20:16	26:01	Tu	11	7:00	14:00	21:25	27:12	Tu	11
E Th	12	7:44	14:45	19:30	5.8	A S	12	7:44	14:45	21:08	26:44	N W	12	7:44	14:45	22:15	28:00	N W	12
○ F	13	8:25	15:34	20:20	5.8	M	13	8:25	15:34	21:50	27:26	Th	13	8:25	15:34	23:02	29:06	Th	13
S	14	9:06	16:23	21:10	5.8	Tu	14	9:06	16:23	22:40	28:01	F	14	9:06	16:23	23:50	30:00	F	14
S	15	9:47	17:12	22:00	5.8	W	15	9:47	17:12	23:28	28:44	S	15	9:47	17:12	24:40	31:00	S	15
A M	16	10:28	18:01	22:50	5.8	N Th	16	10:28	18:01	24:16	29:26	S	16	10:28	18:01	25:50	32:00	S	16
Tu	17	11:09	18:50	23:40	5.8	F	17	11:09	18:50	25:00	30:07	M	17	11:09	18:50	26:40	33:00	M	17
W	18	11:50	19:39	24:30	5.8	S	18	11:50	19:39	25:50	30:58	● Tu	18	11:50	19:39	27:20	34:00	● Tu	18
N Th	19	12:31	20:28	25:20	5.8	○ S	19	12:31	20:28	26:40	31:49	E W	19	12:31	20:28	28:50	35:00	E W	19
F	20	1:12	21:17	26:10	5.8	M	20	1:12	21:17	27:30	32:40	Th	20	1:12	21:17	29:40	36:00	Th	20
● S	21	1:53	22:06	27:00	5.8	Tu	21	1:53	22:06	28:20	33:31	P F	21	1:53	22:06	30:50	37:00	P F	21
S	22	2:34	22:55	27:50	5.8	E W	22	2:34	22:55	29:00	34:22	S	22	2:34	22:55	31:40	38:00	S	22
M	23	3:15	23:44	28:40	5.8	Th	23	3:15	23:44	29:50	35:13	S	23	3:15	23:44	32:30	39:00	S	23
Tu	24	3:56	24:33	29:30	5.8	F	24	3:56	24:33	30:40	36:04	D M	24	3:56	24:33	33:20	40:00	D M	24
W	25	4:37	25:22	30:20	5.8	S	25	4:37	25:22	31:30	36:55	S	25	4:37	25:22	34:10	41:00	S	25
E Th	26	5:18	26:11	31:10	5.8	○ S	26	5:18	26:11	32:20	37:46	W	26	5:18	26:11	35:00	42:00	W	26
F	27	5:59	27:00	32:00	5.8	P M	27	5:59	27:00	33:10	38:37	Th	27	5:59	27:00	35:50	43:00	Th	27
D S	28	6:40	27:49	32:50	5.8	Tu	28	6:40	27:49	34:00	39:28	F	28	6:40	27:49	36:40	44:00	F	28
S	29	7:21	28:38	33:40	5.8	S	29	7:21	28:38	34:50	40:19	S	29	7:21	28:38	37:30	45:00	S	29
M	30	8:02	29:27	34:30	5.8	Th	30	8:02	29:27	35:40	41:10	S	30	8:02	29:27	38:20	46:00	S	30
P Tu	31	8:43	30:16	35:20	5.8	F	31	8:43	30:16	36:30	42:01								

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The time used is Pacific Standard, 120th Meridian W.; 0° is midnight, 12° is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.				W.	Mo.				W.	Mo.							
E	M	1	2:20 0.3	8:36 5.2	14:40 0.9	20:43 5.3	Th	1	2:37 1.7	8:46 5.5	15:29 0.4	21:40 4.0	A	S	1	2:21 2.4	8:39 5.7	15:48 0.0	22:08 3.4
	Tu	2	2:55 1.6	9:06 5.3	15:15 0.7	21:20 5.1	F	2	2:57 1.9	9:10 5.5	16:00 0.4	22:10 3.7	N	S	2	2:42 2.4	9:04 5.7	16:17 0.0	22:40 3.3
A	W	3	3:20 0.9	9:30 5.2	15:42 0.8	21:52 4.7	S	3	3:15 2.1	9:30 5.4	16:30 0.4	22:46 3.4	E	M	3	3:05 2.4	9:29 5.6	16:47 0.1	23:18 3.2
	Th	4	3:44 1.3	9:52 5.1	16:12 0.8	22:22 4.2	A	S	3:32 2.3	9:53 5.3	17:02 0.6	23:20 3.2		Tu	4	3:30 2.5	9:56 5.4	17:21 0.2	23:56 3.3
N	F	5	4:02 1.6	10:11 5.0	16:46 1.0	22:54 3.7	M	5	3:50 2.5	10:17 5.1	17:42 0.7		W	5	4:04 2.7	10:28 5.2	18:00 0.4		
	S	6	4:20 2.0	10:36 4.9	17:24 1.1	23:27 3.4	N	Tu	4:09 3.0	10:45 2.7	18:05 0.9	18:27	Th	6	4:50 3.3	11:09 2.9	18:47 4.8	19:42 0.6	
C	M	7	4:35 2.4	11:00 4.7	18:10 1.3		W	7	4:24 2.9	11:25 2.8	19:28 1.1		F	7	4:58 3.5	11:38 3.0	19:42 4.4	20:42 0.9	
	Tu	8	4:50 2.9	11:30 2.6	18:40 1.4		Th	8	4:40 3.3	11:54 3.0	20:42 1.2		C	S	8	5:05 3.7	12:08 2.9	20:42 8.9	21:47 1.2
E	W	9	5:15 2.9	12:00 2.8	19:10 1.5		F	9	5:00 3.6	12:24 3.0	21:52 1.2		N	M	9	5:15 4.2	12:36 2.7	21:52 8.7	22:55 1.3
	Th	10	5:35 3.2	12:30 2.9	19:40 1.4		S	10	5:10 4.0	12:50 2.9	22:50 1.1			Tu	10	5:27 5.1	12:48 1.2	22:55 8.9	23:47 1.6
N	F	11	5:54 3.8	12:54 2.9	20:08 1.1		M	11	5:11 4.9	13:06 1.4	23:38 1.0		W	11	5:40 5.6	13:06 2.5	23:47 4.1		
	S	12	6:10 4.2	13:18 2.4	20:32 1.6		E	Tu	5:29 1.0	13:24 5.3	24:08 0.7	19:17	Th	12	6:00 1.6	13:36 6.1	24:08 -0.3	25:00 4.1	
C	Th	13	6:29 0.7	13:42 4.5	20:58 1.8		W	13	5:47 1.1	13:42 5.8	25:00 0.0	4:8	F	13	6:17 1.7	13:54 6.4	25:00 -0.9	26:00 4.2	
	M	14	6:48 0.5	14:06 5.0	21:22 1.1		Th	14	5:56 1.2	14:06 6.1	26:00 -0.5	4:6	P	S	14	6:27 1.8	14:18 6.7	26:00 -1.2	27:00 4.2
E	Tu	15	7:07 0.5	14:30 5.0	21:46 1.1		F	15	6:15 1.4	14:42 6.4	27:00 -0.9	4:5	N	S	15	6:37 1.9	14:54 6.8	27:00 -1.2	28:00 4.0
	W	16	7:26 0.5	14:54 5.4	22:10 1.1		S	16	6:34 1.6	15:06 6.5	28:00 -0.9	4:2		M	16	6:48 2.1	15:18 6.6	28:00 -1.1	29:00 4.0
N	Th	17	7:45 0.8	15:18 5.8	22:34 1.1		Th	17	6:53 1.9	15:30 6.8	29:00 -0.8	3.9	W	17	7:00 2.3	15:42 6.2	29:00 -0.8	30:00 4.0	
	F	18	8:04 1.1	15:42 5.9	22:58 1.1		M	18	7:12 2.2	15:54 7.0	30:00 -0.6		Th	18	7:18 2.3	16:06 6.2	30:00 -0.8	31:00 4.0	
C	S	19	8:23 1.5	16:06 5.9	23:22 1.1		Tu	19	7:31 3.7	16:18 7.6	31:00 -0.2		F	19	7:28 4.1	16:24 6.8	31:00 -0.8	32:00 4.0	
	W	20	8:42 1.5	16:30 5.9	23:46 1.1		W	20	7:50 3.7	16:36 7.6	32:00 -0.2		S	20	7:38 4.1	16:42 6.8	32:00 -0.8	33:00 4.0	
E	Th	21	9:01 2.0	16:54 5.6	24:10 1.1		Th	21	8:09 3.7	16:54 7.6	33:00 -0.2		N	M	21	7:48 4.1	16:54 6.8	33:00 -0.8	34:00 4.0
	M	22	9:20 3.7	17:18 5.3	24:34 1.1		F	22	8:28 3.8	17:18 7.6	34:00 -0.2			Tu	22	7:54 4.2	17:18 6.8	34:00 -0.8	35:00 4.0
N	Tu	23	9:39 8.5	17:42 2.8	24:58 1.1		S	23	8:47 4.2	17:42 7.6	35:00 -0.2		E	S	23	8:00 4.5	17:42 6.8	35:00 -0.8	36:00 4.0
	W	24	9:58 8.7	18:06 2.9	25:22 1.1		Th	24	9:06 4.6	18:06 7.6	36:00 -0.2		M	24	8:12 4.8	18:06 6.8	36:00 -0.8	37:00 4.0	
C	Th	25	10:17 4.0	18:30 2.9	25:46 1.1		F	25	9:25 4.9	18:30 7.6	37:00 -0.2		W	25	8:18 5.1	18:30 6.8	37:00 -0.8	38:00 4.0	
	F	26	10:36 4.4	18:54 2.4	26:10 1.1		M	26	9:44 1.3	18:54 7.6	38:00 -0.2		Th	26	8:24 2.1	18:54 6.8	38:00 -0.8	39:00 4.0	
E	S	27	10:55 4.8	19:18 1.7	26:34 1.1		Tu	27	10:03 1.5	19:18 7.6	39:00 -0.2		F	27	8:30 2.3	19:18 6.8	39:00 -0.8	40:00 4.0	
	Th	28	11:14 0.7	19:42 1.2	26:58 1.1		W	28	10:22 1.7	19:42 7.6	40:00 -0.2		N	M	28	8:36 2.4	19:42 6.8	40:00 -0.8	41:00 4.0
N	M	29	11:33 0.8	20:06 1.2	27:22 1.1		Th	29	10:41 2.0	20:06 7.6	41:00 -0.2			Tu	29	8:42 2.6	20:06 6.8	41:00 -0.8	42:00 4.0
	Tu	30	11:52 1.0	20:30 1.2	27:46 1.1		F	30	11:00 2.2	20:30 7.6	42:00 -0.2		E	S	30	8:48 2.5	20:30 6.8	42:00 -0.8	43:00 4.0
C	W	31	12:11 1.4	20:54 1.2	28:10 1.1		S	31	11:19 2.2	20:54 7.6	43:00 -0.2		M	31	8:54 2.5	20:54 6.8	43:00 -0.8	44:00 4.0	

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APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	3:08 4.5	10:48 1.1	18:48 3.8	22:40 3.2	☾	Tu	1	3:25 4.4	11:02 0.7	18:48 4.5	23:35 3.2	F	1	0:25 2.5	6:15 3.9	12:17 1.3	19:07 5.2	
☾	M	2	4:16 4.4	11:48 0.9	19:40 4.1	23:58 3.2		W	2	5:03 4.2	12:01 0.8	19:25 4.7		E	S	2	1:25 1.8	7:33 4.1	13:10 1.6	19:47 5.5
	Tu	3	5:42 4.4	12:45 0.8	20:20 4.4			Th	3	0:48 2.9	6:35 4.2	13:00 0.9	20:02 5.0		S	3	2:11 1.1	8:44 4.3	14:02 1.9	20:26 5.8
	W	4	1:05 2.2	6:58 4.5	13:40 0.7	20:54 4.7		F	4	1:45 2.2	7:50 4.4	13:54 1.1	20:35 5.3		M	4	3:05 0.4	9:50 4.5	14:55 2.2	21:06 6.0
	Th	5	2:04 2.8	8:01 4.7	14:30 0.5	21:27 5.0	E	S	5	2:38 1.6	8:48 4.6	14:44 1.3	21:10 5.5	P	Tu	5	3:55 -0.3	10:50 4.5	15:43 2.4	21:48 6.1
	F	6	2:55 2.2	9:00 5.0	15:20 0.5	22:00 5.2		S	6	3:27 0.9	9:48 4.9	15:30 1.4	21:45 5.7	☾	W	6	4:45 -0.7	11:50 4.6	16:30 2.6	22:34 6.2
	S	7	3:44 1.6	9:52 5.2	16:08 0.7	22:30 5.4		M	7	4:10 0.3	10:46 5.0	16:16 1.7	22:24 5.8		Th	7	5:35 -1.0	12:48 4.8	17:20 2.9	23:20 6.1
E	☾	S	4:30 1.1	10:45 5.3	16:50 0.9	23:55 5.5	☾	Tu	8	4:57 -0.2	11:45 5.0	17:00 2.0	23:04 5.9	S	F	8	6:25 -1.1	13:45 4.8	18:10 3.1	
☾	M	9	5:18 0.7	11:40 5.3	17:38 1.2	23:40 5.6		W	9	5:48 -0.5	12:42 4.9	17:47 2.4	23:45 5.9		S	9	0:06 5.9	7:18 -0.9	14:42 4.7	19:06 3.2
P	Tu	10	6:01 0.3	12:39 5.1	18:17 1.7			Th	10	6:37 -0.7	13:44 4.8	18:32 2.8			S	10	0:59 5.5	8:05 -0.6	15:38 4.8	20:14 3.2
	W	11	0:19 5.6	6:51 0.1	13:38 4.8	19:00 2.2	S	F	11	0:29 5.7	7:30 -0.6	14:51 4.7	19:22 3.1		M	11	1:52 4.9	8:56 -0.2	16:30 4.9	21:24 3.2
	Th	12	1:00 5.5	7:45 0.0	14:45 4.5	19:49 2.6		S	12	1:15 5.5	8:26 -0.4	16:00 4.6	20:23 3.2		Tu	12	3:00 4.5	9:46 0.3	17:22 5.0	22:44 3.0
	F	13	1:44 5.4	8:43 0.1	16:01 4.4	20:41 3.0	☾	S	13	2:10 5.1	9:21 -0.1	17:07 4.6	21:33 3.2	☾	W	13	4:20 4.1	10:37 0.9	18:08 5.1	
S	S	14	2:38 5.2	9:47 0.2	17:24 4.4	21:43 3.1		M	14	3:17 4.7	10:22 0.2	18:05 4.8	23:00 3.2	E	Th	14	0:04 2.8	5:47 3.8	11:36 1.4	18:50 5.2
☾	S	15	3:39 5.0	10:52 0.3	18:38 4.5	23:04 3.2		Tu	15	4:39 4.3	11:21 0.6	18:57 5.0			F	15	1:15 2.3	7:05 3.7	12:28 1.8	19:30 5.2
	M	16	4:52 4.8	12:00 0.5	19:36 4.7			W	16	0:26 3.1	6:05 4.1	12:20 1.0	19:39 5.1		S	16	2:12 1.9	8:15 3.7	13:12 2.2	20:06 5.3
	Tu	17	0:27 3.2	6:16 4.6	13:02 0.6	20:25 4.8		Th	17	1:35 2.6	7:27 4.1	13:15 1.4	20:18 5.2		S	17	2:47 1.4	9:18 3.8	13:55 2.5	20:36 5.3
	W	18	1:41 2.9	7:30 4.6	13:56 0.8	21:03 5.0	E	F	18	2:30 2.0	8:31 4.1	14:07 1.7	20:53 5.2	A	M	18	3:25 0.9	10:10 3.8	14:35 2.8	21:04 5.4
	Th	19	2:40 2.5	8:33 4.6	14:44 1.0	21:39 5.1		S	19	3:15 1.6	9:28 4.2	14:47 2.0	21:22 5.3		Tu	19	4:00 0.5	11:00 4.0	15:15 2.9	21:30 5.5
	F	20	3:26 2.0	9:30 4.7	15:31 1.2	22:10 5.2		S	20	3:45 1.2	10:20 4.3	15:24 2.3	21:50 5.3		W	20	4:32 0.2	11:44 4.2	15:59 3.0	21:58 5.5
E	S	21	4:07 1.6	10:20 4.7	16:10 1.5	22:37 5.2		M	21	4:21 0.8	11:05 4.3	15:59 2.5	22:13 5.3	☾	Th	21	5:07 -0.1	12:28 4.3	16:35 3.1	22:30 5.5
☾	S	22	4:43 1.4	11:08 4.7	16:42 1.8	23:02 5.2	A	Tu	22	4:54 0.5	11:50 4.3	16:32 2.7	22:35 5.3	N	F	22	5:41 -0.3	13:10 4.3	17:14 3.2	23:02 5.4
☾	M	23	5:18 1.1	11:51 4.6	17:13 2.1	23:25 5.1	☾	W	23	5:28 0.2	12:36 4.2	17:07 2.9	23:00 5.2		S	23	6:18 -0.3	13:48 4.4	17:56 3.2	23:34 5.4
	Tu	24	5:49 0.9	12:36 4.5	17:47 2.4	23:46 5.0		Th	24	6:03 0.1	13:20 4.3	17:42 3.1	23:26 5.2		S	24	6:57 -0.3	14:25 4.5	18:45 3.3	
A	W	25	6:25 0.7	13:23 4.2	18:15 2.7			F	25	6:39 0.0	14:06 4.3	18:21 3.2	23:51 5.2		M	25	0:10 5.2	7:36 -0.3	15:04 4.5	19:38 3.2
	Th	26	0:11 5.0	7:03 0.6	14:12 4.2	18:53 2.9	N	S	26	7:18 0.0	14:54 4.2	19:00 3.3			Tu	26	0:54 4.9	8:18 0.8	15:42 4.7	20:34 2.6
	F	27	0:32 4.9	7:42 0.6	15:06 4.0	19:31 3.1		S	27	0:22 5.1	8:00 0.0	15:41 4.2	19:55 3.4		W	27	1:48 4.6	9:03 0.4	16:20 4.8	21:44 3.0
N	S	28	0:57 4.8	8:27 0.6	16:07 4.0	20:19 3.2		M	28	1:00 4.8	8:43 0.2	16:30 4.3	20:55 3.3		Th	28	2:55 4.2	9:54 0.8	17:00 5.0	22:50 2.6
	S	29	1:26 4.7	9:12 0.6	17:07 4.1	21:10 3.3		Tu	29	1:51 4.6	9:30 0.4	17:14 4.6	22:10 3.2	☾	F	29	4:25 3.9	10:44 1.8	17:38 5.1	23:58 2.0
	M	30	2:13 4.6	10:05 0.7	18:01 4.3	22:19 3.2	☾	W	30	3:08 4.3	10:25 0.6	17:54 4.8	23:19 3.1		S	30	5:58 3.7	11:35 1.8	18:20 5.3	
								Th	31	4:38 4.1	11:21 1.0	18:31 5.0								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian, W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☾, new moon; ☽, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.						
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
S	1	0:54	7:28	12:29	19:05	W	1	2:38	9:54		
		1.4	3.8	2.2	5.6			-0.1	4.1		
M	2	1:55	8:50	13:26	19:51	Th	2	3:32	10:46		
		0.7	3.9	2.4	5.9			-0.5	4.3		
Tu	3	2:52	9:56	14:25	20:38	F	3	4:22	11:34		
		0.0	4.0	2.7	6.1			-0.3	4.4		
P W	4	3:45	10:55	15:18	21:25	S	4	5:10	12:17		
		-0.6	4.1	2.8	6.2			-0.9	4.7		
Th	5	4:36	11:45	16:12	22:13	S	5	5:54	12:58		
		-0.9	4.4	3.0	6.2			-0.7	4.8		
F	6	5:23	12:38	17:06	23:04	M	6	6:34	13:37		
		-1.1	4.5	3.0	6.1			-0.4	5.1	2.6	
S	7	6:12	13:26	17:58	23:55	Tu	7	0:36	7:14	14:13	19:32
		-1.1	4.7	3.1	5.8			5.2	0.0	5.0	2.5
S	8	6:59	14:16	18:56		W	8	1:30	7:54	14:52	20:28
		-0.9	4.8	3.1				4.7	0.6	5.0	2.4
M	9	0:45	7:46	16:02	19:55	Th	9	2:27	8:35	15:34	21:29
		5.4	-0.5	4.9	3.1			4.2	1.2	5.0	2.3
Tu	10	1:42	8:26	16:46	21:00	F	10	3:25	9:15	16:12	22:32
		4.9	0.1	5.0	3.0			3.8	1.8	4.8	2.2
W	11	2:45	9:11	16:30	22:08	S	11	4:50	9:54	16:50	23:25
		4.3	0.6	5.1	2.8			3.5	2.2	4.8	2.0
Th	12	3:58	10:00	17:12	23:22	S	12	6:18	10:35	17:32	
		3.9	1.2	5.1	2.5			3.4	2.7	4.8	
F	13	5:18	10:45	17:58		M	13	0:29	7:40	11:24	18:14
		3.5	1.8	5.0				1.7	3.5	2.9	4.8
S	14	0:35	6:40	11:30	18:39	Tu	14	1:24	8:44	12:25	19:00
		2.2	3.4	2.3	5.1			1.3	3.6	3.1	4.9
S	15	1:24	8:00	12:15	19:16	W	15	2:10	9:34	13:21	19:45
		1.8	3.4	2.7	5.1			0.9	3.3	3.2	5.1
M	16	2:14	9:06	13:02	19:50	Th	16	2:53	10:16	14:30	20:28
		1.4	3.6	2.9	5.2			0.5	4.0	3.2	5.2
Tu	17	2:52	9:57	13:55	20:21	F	17	3:31	10:51	15:11	21:14
		0.8	3.8	3.0	5.3			0.1	4.2	3.1	5.3
W	18	3:30	10:44	14:44	20:55	S	18	4:10	11:22	16:00	22:00
		0.4	4.0	3.1	5.4			-0.1	4.4	3.0	5.4
Th	19	4:05	11:25	15:29	21:30	S	19	4:48	11:50	16:45	22:40
		0.0	4.1	3.2	5.5			-0.2	4.6	2.7	5.5
F	20	4:40	12:02	16:09	22:10	M	20	5:30	12:20	17:30	23:25
		-0.3	4.3	3.2	5.6			-0.2	4.8	2.4	5.4
S	21	5:18	12:39	17:00	22:50	Tu	21	6:05	12:50	18:15	
		-0.4	4.5	3.2	5.6			0.0	4.9	2.2	
S	22	5:55	13:10	17:44	23:30	W	22	0:12	6:45	13:22	19:05
		-0.4	4.5	3.1	5.4			5.2	0.3	5.0	1.9
M	23	6:32	13:40	18:30		Th	23	1:00	7:30	13:56	20:00
		-0.4	4.6	2.9				4.9	0.8	5.1	1.6
Tu	24	0:12	7:12	14:15	19:22	F	24	1:55	8:10	14:32	20:55
		5.2	-0.1	4.8	2.8			4.6	1.4	5.1	1.4
W	25	1:00	7:54	14:50	20:12	S	25	3:04	8:54	15:12	21:50
		4.9	0.2	4.9	2.5			4.2	1.9	5.2	1.2
Th	26	1:55	8:37	15:30	21:19	S	26	4:28	9:42	16:00	23:00
		4.6	0.7	5.0	2.3			3.9	2.4	5.2	1.0
F	27	2:58	9:21	16:06	22:24	M	27	6:10	10:41	16:58	
		4.2	1.3	5.1	1.9			3.7	2.5	5.2	
S	28	4:14	10:07	16:47	23:23	Tu	28	0:11	7:40	11:46	18:04
		3.8	1.8	5.2	1.6			0.7	3.9	3.1	6.3
S	29	5:54	11:00	17:36		W	29	1:21	8:48	12:56	19:11
		3.7	2.3	5.4				0.4	4.0	3.2	6.5
M	30	0:35	7:38	11:58	18:29	Th	30	2:22	9:41	14:02	20:12
		1.0	3.7	2.7	5.6			0.0	4.2	3.1	5.5
P Tu	31	1:40	8:55	13:04	19:25	F	31	3:16	10:25	15:05	21:10
		0.4	3.8	2.8	5.8			-0.2	4.6	3.0	5.6

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The time used is Pacific Standard, 120th meridian W. 0° is midnight, 12° is noon. All hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator, N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
O	M	1	4:16 0.7	11:00 5.2	16:40 1.7	22:55 5.0	Th	1	4:56 2.2	11:08 5.3	17:40 0.7	A	S	1	0:30 4.2	4:52 3.0	10:50 5.4	17:56 0.0		
	Tu	2	5:00 1.0	11:30 5.2	17:21 1.4	23:40 4.9	F	2	0:30 4.5	5:30 2.5	11:32 5.2	18:16 0.5	S	2	1:19 4.1	5:25 3.1	11:20 5.2	18:31 -0.1		
	W	3	5:38 1.4	11:58 5.1	18:04 1.3		S	3	1:20 4.4	6:02 2.8	11:58 5.1	18:54 0.4	N	M	3	2:05 4.1	6:08 3.2	11:45 5.2	19:07 0.0	
	Th	4	0:28 4.7	6:10 1.7	12:25 5.1	18:42 1.2	A	S	4	2:10 4.2	6:40 3.1	12:22 5.0	19:32 0.5	Tu	4	2:48 4.3	6:52 3.3	12:11 5.0	19:46 0.1	
	F	5	1:18 4.4	6:48 2.1	12:50 5.0	19:20 1.1	M	5	3:04 4.0	7:18 3.2	12:46 4.8	20:13 0.5	W	5	3:33 4.4	7:38 3.3	12:45 4.8	20:27 0.2		
	S	6	2:08 4.1	7:18 2.5	13:15 4.8	20:00 1.0	N	Tu	6	4:00 4.0	8:00 3.8	13:10 4.7	20:56 0.6	Th	6	4:11 4.6	8:37 3.3	13:30 4.6	21:10 0.4	
	A	S	3:06 3.9	7:51 2.8	13:41 4.7	20:46 1.1	W	7	4:55 4.1	8:50 3.4	13:50 4.5	21:45 0.7	F	7	4:52 4.6	9:43 3.2	14:30 4.3	21:59 0.7		
	M	8	4:15 3.8	8:34 3.1	14:11 4.5	21:35 1.1	Th	8	5:43 4.3	9:58 3.4	14:55 4.3	22:39 0.8	C	S	8	5:29 4.7	10:48 3.1	15:56 3.9	22:52 1.0	
	N	Tu	5:30 3.8	9:20 3.2	14:48 4.4	22:30 1.1	C	F	9	6:30 4.5	11:20 3.2	16:30 4.1	23:35 0.9	S	9	6:05 4.9	11:59 2.6	17:38 3.7	23:44 1.4	
	C	W	6:36 3.9	10:20 3.3	15:50 4.3	23:28 1.0	S	10	7:02 4.7	12:29 3.0	18:08 4.0		E	M	10	6:41 5.1	13:00 1.9	19:05 3.9		
	Th	11	7:25 4.2	11:44 3.2	17:20 4.2		S	11	0:32 1.1	7:37 4.9	13:26 2.4	19:26 4.1	Tu	11	0:37 1.7	7:19 5.4	13:46 1.2	20:16 4.1		
	F	12	0:20 0.9	8:02 4.4	12:52 3.1	18:40 4.3	M	12	1:26 1.3	8:10 5.1	14:20 1.7	20:26 4.3	W	12	1:29 2.0	7:59 5.7	14:41 0.5	21:28 4.2		
E	S	13	1:18 0.9	8:34 4.6	13:50 2.8	19:47 4.5	E	Tu	13	2:15 1.4	8:44 5.4	15:04 1.0	21:28 4.6	Th	13	2:25 2.2	8:40 5.9	15:32 -0.2	22:30 4.4	
	S	14	2:10 0.8	9:05 4.9	14:40 2.3	20:44 4.7	W	14	3:02 1.6	9:20 5.7	15:48 0.4	22:26 4.8	F	14	3:13 2.5	9:23 6.1	16:24 -0.7	23:30 4.6		
	M	15	2:58 0.8	9:36 5.2	15:27 1.7	21:35 4.9	Th	15	3:50 1.9	9:56 5.9	16:36 -0.2	23:24 4.7	P	S	15	4:03 2.7	10:08 6.3	17:12 -1.1		
	Tu	16	3:43 1.0	10:05 5.4	16:10 1.1	22:26 5.1	●	F	16	4:34 2.2	10:36 6.0	17:24 -0.6		S	16	0:25 4.7	4:53 2.9	10:55 6.2	18:02 -1.2	
	●	W	4:25 1.2	10:40 5.5	16:55 0.6	23:22 5.2	S	17	0:20 4.7	5:20 2.5	11:20 6.1	18:16 -0.8	M	17	1:20 4.7	5:47 3.1	11:42 6.0	18:51 -1.1		
	Th	18	5:06 1.4	11:12 5.6	17:37 0.2		S	18	1:22 4.7	6:07 2.8	12:02 6.0	19:05 -0.8	Tu	18	2:13 4.7	6:37 3.2	12:34 5.7	19:41 -0.9		
	P	F	0:16 5.0	5:50 1.8	11:52 5.6	18:27 -0.1	S	M	19	2:24 4.7	6:57 3.1	12:50 5.8	20:00 -0.7	W	19	3:08 4.8	7:37 3.2	13:29 5.3	20:30 -0.4	
	S	20	1:15 4.8	6:34 2.2	12:32 5.7	19:19 -0.2	Tu	20	3:30 4.7	7:55 3.2	13:40 5.4	20:52 -0.4	Th	20	4:00 4.9	8:45 3.2	14:33 4.8	21:20 0.1		
	S	21	2:22 4.5	7:18 2.7	13:15 5.5	20:14 -0.2	W	21	4:32 4.7	9:05 3.2	14:42 4.9	21:50 0.0	F	21	4:47 5.0	10:05 3.1	15:48 4.2	22:10 0.7		
	S	M	3:30 4.4	8:07 3.0	14:06 5.3	21:12 -0.1	D	Th	22	5:31 4.8	10:20 3.2	16:02 4.4	22:47 0.4	D	S	22	5:35 5.1	11:26 2.8	17:15 3.8	23:07 1.3
	Tu	23	4:50 4.4	9:10 3.2	15:00 5.0	22:15 0.1	F	23	6:22 5.0	11:48 3.1	17:30 4.2	23:44 0.9	E	S	23	6:21 5.3	12:42 2.3	18:36 3.7		
	D	W	6:03 4.4	10:28 3.2	16:12 4.7	23:24 0.3	S	24	7:07 5.1	13:05 2.6	18:55 4.0		M	24	0:00 1.8	7:05 5.3	13:48 1.9	19:53 3.7		
E	Th	25	7:04 4.6	11:50 3.2	17:40 4.5		E	S	25	0:47 1.3	7:50 5.2	14:05 2.1	20:05 4.0	Tu	25	0:49 2.2	7:45 5.3	14:31 1.4	21:01 3.7	
	F	26	0:25 0.6	7:52 4.8	13:10 3.0	18:58 4.5	M	26	1:40 1.7	8:30 5.3	14:56 1.6	21:10 4.1	W	26	1:33 2.5	8:20 5.8	15:15 0.9	22:00 3.8		
	S	27	1:24 0.8	8:34 5.0	14:14 2.5	20:10 4.5	Tu	27	2:25 2.0	9:00 5.4	15:33 1.1	22:05 4.2	Th	27	2:13 2.8	8:52 5.4	15:53 0.5	22:50 3.9		
	S	28	2:16 1.0	9:10 5.2	15:05 2.0	21:11 4.6	W	28	3:04 2.3	9:33 5.4	16:10 0.8	22:56 4.2	A	F	28	3:00 3.1	9:21 5.4	16:26 0.1	23:37 4.0	
	E	M	3:06 1.3	9:45 5.2	15:50 1.5	22:05 4.7	Th	29	3:41 2.6	9:58 5.5	16:46 0.4	23:44 4.2	S	29	3:42 3.2	9:50 5.5	17:00 -0.1			
	Tu	30	3:46 1.6	10:14 5.3	16:30 1.2	22:56 4.7	C	F	30	4:16 2.8	10:25 5.5	17:22 0.2		O	S	30	0:20 4.1	4:20 3.2	10:21 5.5	17:34 -0.3
	O	W	4:22 1.9	10:42 5.3	17:02 0.9	23:44 4.6								M	31	1:00 4.2	5:00 3.2	10:55 5.4	18:08 -0.3	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.								
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
E D	M	1	5:32 7.6	11:58 2.8	17:30 6.4	23:49 1.5	D A	Th	1	6:07 7.6	12:50 2.5	18:47 5.6	...	A	Th	1	4:30 7.8	11:02 1.9	17:03 6.2	22:52 2.9
	Tu	2	6:20 7.6	12:52 2.8	18:32 6.0	...		F	2	0:30 8.1	7:00 7.5	13:55 2.2	20:02 5.3	F	2	5:10 7.6	11:50 1.9	18:00 5.7	23:35 3.4	
	W	3	0:39 2.1	7:10 7.6	13:55 2.7	19:43 5.8		S	3	1:28 8.5	7:56 7.5	15:00 1.8	21:18 5.4	D	S	3	5:58 7.4	12:48 1.9	19:11 5.4	...
A	Th	4	1:38 2.7	8:00 7.5	14:50 2.3	20:55 5.6	N	S	4	2:40 4.0	8:53 7.7	15:59 1.2	22:25 6.8	S	4	0:34 3.8	6:55 7.3	13:56 1.7	20:30 5.4	
	F	5	2:40 3.2	8:51 7.7	15:56 1.7	22:02 5.7		M	5	3:51 4.0	9:47 7.9	16:50 0.6	23:18 6.2	N	M	5	1:50 4.1	8:02 7.3	15:02 1.4	21:44 5.8
	S	6	3:40 3.5	9:43 7.9	16:45 1.1	22:58 6.0		Tu	6	4:52 3.9	10:37 8.2	17:35 0.0	...	Tu	6	3:15 4.1	9:08 7.6	16:05 0.9	22:38 6.4	
N	S	7	4:33 3.6	10:27 8.2	17:28 0.4	23:45 6.3	O	W	7	0:00 6.7	5:43 3.6	11:23 8.6	18:16 —0.4	W	7	4:21 3.8	10:06 7.9	16:58 0.5	23:24 7.0	
	M	8	5:23 3.6	11:08 8.5	18:07 —0.1	...		Th	8	0:40 7.3	6:27 3.2	12:08 8.9	18:55 —0.7	Th	8	5:16 8.2	11:00 8.3	17:43 0.1	...	
	Tu	9	0:28 6.6	6:08 8.6	11:47 8.8	18:43 —0.6		F	9	1:17 7.7	7:09 2.8	12:52 9.0	19:34 —0.8	F	9	0:04 7.6	6:08 2.6	11:50 8.7	18:26 —0.1	
O	W	10	1:07 6.9	6:47 8.5	12:25 8.9	19:18 —0.8	E	S	10	1:54 8.1	7:50 2.3	13:35 9.1	20:12 —0.6	O	S	10	0:41 8.2	6:47 1.9	12:38 8.9	19:05 —0.1
	Th	11	1:44 7.2	7:27 8.4	13:05 9.0	—0.9		S	11	2:31 8.4	8:34 1.9	14:20 8.9	20:50 —0.2	E	S	11	1:19 8.6	7:25 1.3	13:23 8.9	19:45 0.1
	F	12	2:22 7.5	8:07 3.2	13:45 8.9	20:33 —0.8		M	12	3:09 8.6	9:15 1.6	15:07 8.4	21:29 0.3	P	M	12	1:57 9.0	8:07 0.8	14:10 8.7	20:25 0.5
P	S	13	3:00 7.7	8:50 2.9	14:30 8.7	21:11 —0.5	P	Tu	13	3:48 8.7	10:02 1.4	15:59 7.8	22:10 1.0	Tu	13	2:35 9.0	8:55 0.5	15:00 8.4	21:06 1.0	
	S	14	3:36 7.9	9:37 2.7	15:15 8.3	21:51 0.0		W	14	4:31 8.6	10:55 1.4	16:58 7.1	23:03 1.8	W	14	3:16 9.0	9:45 0.4	15:51 7.8	21:57 1.7	
	M	15	4:16 8.1	10:20 2.6	16:08 7.7	22:33 0.6		Th	15	5:20 8.4	11:58 1.3	18:06 6.4	23:58 2.6	Th	15	4:00 8.9	10:40 0.5	16:50 7.1	22:45 2.4	
E	Tu	16	5:01 8.2	11:15 2.4	17:07 7.0	23:20 1.3	C	F	16	6:15 8.2	13:12 1.3	19:27 5.9	...	F	16	4:50 8.6	11:40 0.6	17:58 6.5	23:43 3.0	
	W	17	5:50 8.1	12:18 2.2	18:17 6.4	...		S	17	1:02 3.2	7:18 8.1	14:30 1.0	20:56 5.9	C	S	17	5:49 8.2	12:51 0.7	19:18 6.2	...
	Th	18	0:18 2.1	6:45 8.1	13:32 1.9	19:37 6.0		S	18	2:21 3.6	8:27 8.1	15:45 0.6	22:13 6.2	S	18	0:55 3.5	6:56 7.9	14:08 0.8	20:43 6.2	
P	F	19	1:22 2.7	7:47 8.2	14:48 1.4	21:02 5.8	M	M	19	3:43 3.7	9:36 8.3	16:48 0.1	23:13 6.6	M	19	2:20 3.7	8:11 7.7	15:22 0.6	21:55 6.6	
	S	20	2:33 3.2	8:50 8.4	16:00 0.7	22:19 6.0		Tu	20	4:52 3.4	10:37 8.5	17:40 —0.3	...	Tu	20	3:41 3.5	9:25 7.8	16:25 0.4	22:51 7.0	
	S	21	3:45 3.4	9:49 8.7	17:02 0.0	23:22 6.4		W	21	0:01 7.1	5:50 3.0	11:31 8.7	18:26 —0.5	W	21	4:48 8.0	10:30 8.0	17:17 0.2	23:35 7.4	
S	M	22	4:53 3.4	10:45 9.0	17:55 —0.6	...	●	Th	22	0:42 7.5	6:37 2.6	12:19 8.8	19:06 —0.5	Th	22	5:40 2.5	11:23 8.2	18:02 0.2	...	
	Tu	23	0:15 6.8	5:51 3.3	11:37 9.2	18:40 —0.9		F	23	1:18 7.8	7:20 2.3	13:01 8.7	19:42 —0.3	F	23	0:12 7.9	6:25 2.0	12:10 8.2	18:41 0.4	
	W	24	1:00 7.2	6:43 3.1	12:25 9.3	19:23 —1.1		S	24	1:50 8.0	8:00 2.1	13:40 8.5	20:15 0.2	●	S	24	0:47 8.1	7:00 1.6	12:50 8.2	19:16 0.8
●	Th	25	1:40 7.5	7:29 2.9	13:10 9.2	20:03 —1.0	E	S	25	2:21 8.1	8:35 1.9	14:20 8.1	20:46 0.7	E	S	25	1:15 8.3	7:35 1.3	13:26 8.0	19:45 1.1
	F	26	2:18 7.7	8:13 2.7	13:53 8.9	20:40 —0.6		M	26	2:53 8.1	9:06 1.8	14:56 7.6	21:12 1.2	M	26	1:45 8.3	8:07 1.2	14:02 7.8	20:13 1.5	
	S	27	2:55 7.8	8:57 2.6	14:35 8.4	21:15 —0.1		Tu	27	3:24 8.1	9:42 1.8	15:33 7.2	21:41 1.8	Tu	27	2:15 8.2	8:40 1.2	14:37 7.5	20:42 2.0	
E	S	28	3:30 7.9	9:40 2.5	15:17 7.9	21:50 0.5	W	W	28	3:56 7.9	10:20 1.9	16:15 6.7	22:17 2.4	A	W	28	2:41 8.1	9:10 1.2	15:14 7.1	21:12 2.5
	M	29	4:06 7.9	10:20 2.5	16:00 7.3	22:23 1.2		Th	29	...	...	...	...	Th	29	3:10 8.0	9:45 1.2	15:50 6.6	21:40 2.9	
	Tu	30	4:40 7.9	11:05 2.5	16:48 6.7	22:57 1.8		F	30	...	...	...	...	F	30	3:44 7.9	10:20 1.3	16:35 6.2	22:15 3.3	
	W	31	5:20 7.7	11:54 2.5	17:42 6.1	23:43 2.5								S	31	4:20 7.7	11:03 1.3	17:25 6.0	23:00 3.6	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ☉, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

MAY.				JUNE.			
Day of— Mo.	W	Mo.	Time and Height of High and Low Water.	Day of— Mo.	W	Mo.	Time and Height of High and Low Water.
			1				1
			2				2
			3				3
			4				4
			5				5
			6				6
			7				7
			8				8
			9				9
			10				10
			11				11
			12				12
			13				13
			14				14
			15				15
			16				16
			17				17
			18				18
			19				19
			20				20
			21				21
			22				22
			23				23
			24				24
			25				25
			26				26
			27				27
			28				28
			29				29
			30				30
			31				31

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day—a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian W., 0° is midnight, 12° is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar., E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.				AUGUST.				SEPTEMBER.			
Mo.	Day of	Time and Height of High and Low Water.				Mo.	Day of	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.				
P	S 1	2:27	8:31	14:14	20:40	S	W 1	4:28	10:48	16:12	22:13
		1.8	6.1	2.5	8.5			0.2	6.2	3.5	8.9
M	M 2	3:35	9:45	15:18	21:35	Th	2	5:23	11:43	17:15	23:18
		1.1	6.2	2.9	8.9			-0.8	6.7	8.3	9.2
Tu	3	4:36	10:50	16:20	22:28	F	3	6:14	12:30	18:10	23:59
		0.3	6.4	3.0	9.2			-0.7	7.1	3.1	9.3
W	4	5:33	11:48	17:18	23:18	S	4	6:59	13:13	19:00	24:59
		-0.4	6.7	3.1	9.5			-1.0	7.4	2.8	9.6
Th	5	6:23	12:41	18:15	24:15	S	5	0:47	7:40	13:53	19:48
		-1.0	7.0	3.1	9.6			9.2	-0.9	7.7	2.6
F	6	0:06	7:12	13:20	19:06	M	6	1:32	8:20	14:32	20:35
		9.7	-1.3	7.3	8.0			9.0	-0.6	7.9	2.4
S	7	0:55	7:58	14:15	19:59	Tu	7	2:16	8:58	15:10	21:21
		9.6	-1.3	7.5	8.0			8.6	-0.1	8.0	2.3
S	8	1:43	8:42	15:01	20:52	W	8	3:00	9:35	15:50	22:03
		9.4	-1.2	7.7	2.9			8.0	0.5	8.0	2.2
M	9	2:32	9:21	15:47	21:45	Th	9	3:46	10:12	16:27	22:52
		8.9	-0.7	7.8	2.9			7.4	1.2	8.0	2.3
Tu	10	3:21	10:10	16:32	22:42	F	10	4:36	10:50	17:06	23:43
		8.3	-0.1	7.8	2.8			6.8	1.8	7.8	2.3
W	11	4:15	10:53	17:13	23:36	S	11	5:31	11:35	17:55	24:59
		7.6	0.6	7.8	2.7			6.2	2.5	7.6	2.6
Th	12	5:10	11:37	18:01	24:15	S	12	0:41	6:35	12:26	18:46
		6.9	1.3	7.8	2.7			2.2	5.7	8.1	7.5
F	13	0:33	6:15	12:23	18:51	M	13	1:44	7:48	13:24	19:41
		2.6	6.3	1.9	7.8			2.1	5.6	3.5	7.5
S	14	1:37	7:24	13:22	19:43	Tu	14	2:45	9:02	14:30	20:38
		2.4	6.0	2.6	7.7			1.7	5.5	3.8	7.6
S	15	2:40	8:35	14:20	20:32	W	15	3:43	10:05	15:38	21:31
		2.1	5.7	3.1	7.8			1.3	6.8	3.9	7.8
M	16	3:39	9:42	15:20	21:25	Th	16	4:33	10:57	16:36	22:20
		1.6	5.8	3.4	7.9			0.8	6.2	3.8	8.0
Tu	17	4:30	10:40	16:15	22:20	F	17	5:17	11:40	17:25	23:06
		1.1	6.0	3.6	8.2			0.3	6.7	3.6	8.4
W	18	5:13	11:28	17:05	22:50	S	18	5:57	12:18	18:08	23:50
		0.6	6.3	3.7	8.4			-0.1	7.2	3.2	8.7
Th	19	5:52	12:10	17:48	23:30	S	19	6:35	12:54	18:48	24:59
		0.1	6.5	3.7	8.6			-0.3	7.6	2.8	9.0
F	20	6:23	12:48	18:30	24:15	M	20	0:32	7:12	13:30	19:23
		-0.3	6.8	3.6	8.6			8.8	-0.4	8.0	2.3
S	21	0:09	7:08	13:25	19:09	Tu	21	1:15	7:49	14:06	20:10
		8.7	-0.5	7.1	3.4			8.8	-0.2	8.3	1.9
S	22	0:47	7:38	14:03	19:50	W	22	1:59	8:22	14:44	20:43
		8.8	-0.6	7.4	3.2			8.7	0.0	8.5	1.6
M	23	1:23	8:15	14:40	20:30	Th	23	2:45	9:05	15:23	21:35
		8.7	-0.5	7.6	3.0			8.3	0.5	8.7	1.4
Tu	24	2:10	8:50	15:15	21:15	F	24	3:35	9:46	16:05	22:23
		8.5	-0.3	7.9	2.7			7.9	1.2	8.5	1.3
W	25	2:55	9:30	15:53	21:55	S	25	4:32	10:32	16:51	23:23
		8.2	0.1	8.0	2.5			7.2	1.9	8.4	1.2
Th	26	3:43	10:10	16:30	22:43	S	26	5:36	11:30	17:45	24:59
		7.7	0.7	8.2	2.3			6.5	2.6	8.3	1.3
F	27	4:40	10:53	17:21	23:43	M	27	0:37	6:53	12:31	18:45
		7.1	1.3	8.2	2.1			1.2	6.0	3.2	8.1
S	28	5:45	11:43	18:13	24:15	Tu	28	1:53	8:19	13:46	19:53
		6.6	2.0	8.2	2.2			1.0	5.9	3.6	8.1
S	29	0:55	7:00	12:45	19:13	W	29	3:10	9:38	15:07	21:03
		1.8	6.1	2.6	8.2			0.7	6.1	3.7	8.2
M	30	2:09	8:22	13:52	20:13	Th	30	4:15	10:40	16:18	22:07
		1.4	5.8	3.1	8.4			0.3	6.5	3.5	8.4
P	Tu 31	3:22	9:40	15:02	21:14	F	31	5:10	11:30	17:18	23:04
		0.9	5.9	3.3	8.6			-0.1	7.0	3.1	8.6

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●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.				W.	Mo.				W.	Mo.							
BO	M	1	6:15	12:19	18:36	...	...	Th	1	0:55	7:02	12:49	19:30	A S 1	1:20	7:10	12:50	19:43	
			0.5	8.3	1.4	...	...			7.6	2.1	8.6	0.3		6.9	3.2	8.7	-0.2	
	Tu	2	0:29	6:51	12:51	19:13	...	F	2	1:32	7:33	13:18	20:02	S	2	1:56	7:40	13:19	20:13
			8.2	0.9	8.4	1.1	...			7.3	2.6	8.6	0.3		6.8	3.5	8.6	-0.2	
	W	3	1:09	7:23	13:22	19:47	...	S	3	2:08	8:01	13:46	20:32	N M	3	2:32	8:12	13:50	20:42
A			8.1	1.2	8.4	0.9	...			7.0	2.9	8.4	0.3		6.7	3.6	8.5	-0.1	
	Th	4	1:45	7:55	13:52	20:23	...	A S	4	2:45	8:30	14:17	21:03	Tu	4	3:08	8:45	14:25	21:14
			7.9	1.6	8.4	0.9	...			6.8	3.2	8.3	0.4		6.7	3.7	8.3	0.0	
	F	5	2:23	8:27	14:22	20:57	...	M	5	3:24	9:03	14:50	21:37	W	5	3:44	9:25	15:03	21:50
			7.5	2.2	8.3	0.9	...			6.6	3.5	8.1	0.6		6.7	3.8	8.0	0.2	
N	S	6	3:00	9:00	14:52	21:31	...	N Tu	6	4:03	9:40	15:27	22:15	Th	6	4:24	10:11	15:46	22:30
			7.0	2.6	8.1	1.0	...			6.4	3.8	7.8	0.8		6.8	3.9	7.6	0.6	
	A S	7	3:40	9:30	15:27	22:08	...	W	7	4:48	10:27	16:10	23:00	F	7	5:10	11:01	16:38	23:15
			6.6	3.1	7.9	1.2	...			6.3	4.1	7.4	1.0		7.0	3.8	7.1	1.0	
	M	8	4:26	10:17	16:05	22:52	...	Th	8	5:42	11:28	17:05	23:53	C S	8	6:01	12:01	17:42	...
C			6.2	3.5	7.6	1.3	...			6.3	4.2	7.0	1.2		7.2	3.6	6.6	...	
	N Tu	9	5:15	10:53	16:50	23:43	...	C F	9	6:42	12:40	18:14	...	S	9	0:05	6:55	13:09	18:56
			5.9	3.9	7.9	1.5	...			6.5	4.1	6.6	...		1.4	7.4	3.2	6.3	
	C W	10	6:17	11:56	17:48	...	...	S	10	0:50	7:41	18:48	19:32	E M	10	1:05	7:46	14:18	20:17
			5.8	4.2	7.0	...	...			1.4	6.8	3.6	6.5		1.8	7.7	2.5	6.3	
P	Th	11	0:42	7:27	13:17	18:58	...	S	11	1:53	8:35	14:53	20:46	Tu	11	2:11	8:40	15:24	21:30
			1.6	5.9	4.2	6.8	...			1.6	7.3	2.9	6.6		2.2	8.1	1.7	6.5	
	F	12	1:47	8:33	14:37	20:12	...	M	12	2:54	9:26	15:52	21:52	W	12	3:15	9:37	16:24	22:34
			1.6	6.3	4.0	6.9	...			1.7	7.8	2.1	7.0		2.4	8.7	0.8	6.7	
	S	13	2:51	9:28	15:50	21:18	...	E Tu	13	3:58	10:15	16:45	22:50	Th	13	4:15	10:26	17:18	23:32
E			1.4	6.8	3.4	7.1	...			1.7	8.4	1.1	7.4		2.5	9.2	-0.1	6.9	
	S	14	3:47	10:16	16:27	22:17	...	W	14	4:48	10:59	17:35	23:43	F	14	5:10	11:13	18:06	...
			1.3	7.5	2.6	7.5	...			1.8	9.0	0.3	7.7		2.7	9.6	-0.8	...	
	M	15	4:37	10:58	17:10	23:09	...	Th	15	5:38	11:40	18:21	...	P S	15	0:25	6:00	12:00	18:57
			1.1	8.1	1.7	7.9	...			1.9	9.5	-0.5	...		7.2	2.8	9.9	-1.3	
●	E Tu	16	5:22	11:37	17:54	23:58	...	● F	16	0:34	6:25	12:23	19:08	S S	16	1:15	6:52	12:40	19:45
			1.0	8.6	0.9	8.3	...			7.8	2.0	9.8	-1.0		7.3	2.8	9.9	-1.6	
	● W	17	6:05	12:15	18:37	...	...	S	17	1:24	7:10	13:06	19:55	M	17	2:05	7:44	13:33	20:33
			1.0	9.0	0.2	...	...			7.8	2.3	9.9	-1.3		7.4	2.9	9.8	-1.5	
	Th	18	0:46	6:50	12:53	19:22	...	S	18	2:15	7:58	13:51	20:45	Tu	18	2:55	8:37	14:22	21:20
P			8.5	1.1	9.4	-0.3	...			7.7	2.5	9.8	-1.3		7.5	2.9	9.4	-1.2	
	P F	19	1:34	7:35	13:33	20:09	...	M	19	3:08	8:50	14:39	21:37	W	19	3:45	9:33	15:14	22:10
			8.4	1.5	9.5	-0.5	...			7.5	2.8	9.4	-1.0		7.6	3.0	8.8	-0.7	
	S	20	2:23	8:18	14:15	20:58	...	Tu	20	4:04	9:47	15:32	22:32	Th	20	4:37	10:33	16:10	23:00
			8.0	1.9	9.5	-0.6	...			7.3	3.2	8.8	-0.6		7.6	3.1	8.1	0.0	
S	S	21	3:17	9:06	15:01	21:50	...	W	21	5:02	10:52	16:30	23:32	F	21	5:25	11:40	17:14	23:53
			7.6	2.4	9.2	-0.4	...			7.2	3.4	8.1	0.0		7.7	3.0	7.3	0.8	
	M	22	4:15	10:00	15:52	22:50	...	Th	22	6:04	12:06	17:42	...	D S	22	6:20	12:45	18:24	...
			7.1	2.9	8.7	-0.2	...			7.2	3.5	7.4	...		7.7	2.8	6.6	...	
	D Tu	23	5:18	11:03	16:52	23:55	...	F	23	0:32	7:07	13:23	18:59	E S	23	0:48	7:17	13:54	19:40
D			6.8	3.4	8.2	0.2	...			0.6	7.3	8.2	6.9		1.4	7.8	2.4	6.3	
	D W	24	6:32	12:20	18:01	...	...	S	24	1:36	8:07	14:33	20:18	M	24	1:46	8:12	15:02	20:55
			6.8	3.7	7.7	...	...			1.1	7.6	2.7	6.8		2.0	7.9	2.0	6.2	
	Th	25	1:05	7:48	13:44	19:23	...	E S	25	2:38	9:01	15:37	21:29	Tu	25	2:50	9:05	16:03	22:02
			0.5	6.9	8.6	7.3	...			1.5	7.9	2.0	6.9		2.4	8.0	1.5	6.2	
E	F	26	2:17	8:53	15:02	20:42	...	M	26	3:37	9:49	16:31	22:28	W	26	3:50	9:52	16:56	23:00
			0.7	7.3	8.1	7.2	...			1.8	8.1	1.4	7.0		2.8	8.2	0.9	6.3	
	S	27	3:31	9:47	16:06	21:51	...	Tu	27	4:30	10:33	17:18	23:18	Th	27	4:45	10:38	17:38	23:48
			0.9	7.6	2.4	7.4	...			2.0	8.3	0.9	7.0		3.0	8.3	0.4	6.4	
	S	28	4:17	10:33	16:55	22:47	...	W	28	5:18	11:14	18:01	...	A F	28	5:32	11:16	18:18	...
E			1.1	8.0	1.7	7.5	...			2.3	8.5	0.5	...		3.2	8.5	0.0	...	
	M	29	5:05	11:12	17:40	23:35	...	Th	29	0:04	6:00	11:48	18:38	S	29	0:30	6:13	11:52	18:52
			1.3	8.2	1.2	7.7	...			7.0	2.6	8.6	0.1		6.6	3.4	8.6	-0.3	
	Tu	30	5:47	11:47	18:20	...	...	F	30	0:45	6:37	12:19	19:13	S	30	1:07	6:50	12:25	19:23
			1.4	8.4	0.8	...	...			7.0	2.9	8.7	-0.1	N		6.7	3.5	8.7	-0.4
○	W	31	0:17	6:27	12:19	18:57	...							M	31	1:40	7:23	12:58	19:53
			7.7	1.7	8.6	0.5	...								6.8	3.6	8.6	-0.4	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 4.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>a</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.										MARCH.													
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.										
	W.	Mo.							W.		Mo.							W.	Mo.														
E	M	1	1:40	9:20	16:30	20:50	3.7	11.0	6.6	7.5	A	Th	1	2:25	9:16	16:36	6.6	10.2	4.7	A	Th	1	1:14	7:41	14:26	21:38	6.6	9.8	4.6	8.0			
	Tu	2	2:28	9:55	17:25	22:40	4.9	10.7	5.8	7.4		F	2	0:08	8:09	9:45	17:25	7.8	7.4		9.8	4.1	F	2	1:54	8:13	15:19	23:19	7.2	9.6	4.3	8.4	
	W	3	3:14	10:26	18:01	22:50	6.1	10.4	5.2			S	3	1:51	4:06	10:21	18:09	8.4	7.2		9.7	8.5	D	S	3	2:26	8:35	16:11		7.7	9.3	4.0	
A	Th	4	0:40	4:02	10:54	18:35	7.6	7.0	10.2	4.4	S	S	4	2:51	5:13	10:45	18:50	8.8	8.4	9.6	2.9	D	S	4	1:04	3:39	8:51	17:05	8.9	8.3	9.1	3.6	
	F	5	2:11	4:41	11:19	19:05	8.1	7.6	10.1	8.5		M	5	3:32	6:25	11:10	19:30	9.6	8.7	9.4	2.4		N	M	5	2:06	5:00	9:24	17:57	9.3	8.6	8.9	3.2
	S	6	3:11	5:55	11:54	19:34	8.7	8.1	9.9	2.8		Tu	6	4:04	7:30	12:08	20:08	9.9	8.9	9.4	1.9		Tu	6	2:41	6:25	10:45	18:45	9.7	8.6	8.7	2.8	
N	S	7	3:58	6:48	12:15	20:06	9.3	8.5	9.7	2.2	W	W	7	4:31	8:14	13:08	20:47	10.4	8.7	9.5	1.5	W	W	7	3:08	7:25	12:22	19:34	10.2	8.3	8.8	2.6	
	M	8	4:35	7:41	12:29	20:38	9.8	8.8	9.7	1.6		Th	8	4:54	9:04	14:13	21:27	10.7	8.3	9.5	1.3		Th	8	3:31	8:08	13:38	20:20	10.4	7.7	9.1	2.4	
	Tu	9	5:06	8:28	12:54	21:12	10.2	8.9	9.7	1.1		F	9	5:16	9:55	15:13	22:08	11.0	7.9	9.5	1.5		F	9	3:56	8:56	14:43	21:06	10.6	7.2	9.4	2.5	
O	W	10	5:36	9:13	13:40	21:49	10.7	8.9	9.8	0.9	S	S	10	5:42	10:44	16:11	22:51	11.2	7.4	9.5	1.9	O	S	10	4:20	9:39	15:39	21:51	10.7	6.4	9.7	2.8	
	Th	11	6:01	10:04	14:32	22:26	10.9	8.8	9.6	0.8		S	11	6:10	11:34	17:11	23:35	11.2	6.7	9.3	2.6		E	S	11	4:46	10:22	16:30	22:35	10.8	5.5	9.8	3.5
	F	12	6:28	11:04	15:34	23:08	11.0	8.4	9.5	1.1		E	M	12	6:39	12:23	18:14		6:39	12:23	18:14			P	M	12	5:15	11:06	17:26	23:16	10.9	4.6	9.8
P	S	13	6:56	11:59	16:37	23:50	11.3	7.9	9.2	1.6	P	Tu	13	0:18	7:10	13:21	19:22	3.8	11.0	5.2	8.8	Tu	13	5:46	11:55	18:25	23:59	10.8	3.8	9.8	5.2		
	S	14	7:29	12:58	17:46		11.4	7.4	8.8			W	14	1:02	7:45	14:09	20:38	4.9	10.8	4.4	8.5		W	14	6:21	12:41	19:30		10.7	3.3	9.6		
	M	15	0:35	8:01	13:59	19:08	2.5	11.4	6.6	8.7		Th	15	1:48	8:19	15:10	22:13	6.0	10.7	3.8	8.4		Th	15	0:48	7:01	13:32	20:40	6.2	10.6	3.0	9.4	
E	Tu	16	1:20	8:34	15:01	20:27	3.8	11.2	6.0	7.9	C	F	16	2:42	9:05	16:16		2:42	9:05	16:16		F	16	1:38	7:38	14:31	22:06	7.1	10.4	2.9	9.2		
	W	17	2:08	9:06	15:54	22:10	5.0	11.0	5.0	7.0		S	17	0:10	3:35	9:48	17:21	8.7	7.8	10.3	2.7		C	S	17	2:36	8:19	15:36	23:48	7.7	10.2	2.8	9.5
	Th	18	2:59	9:42	16:55		6.2	10.8	4.0			S	S	18	1:44	4:54	10:40	18:22	9.1	8.4	10.1		2.2	S	S	18	3:51	9:11	16:44		8.3	9.6	2.8
P	F	19	0:13	3:58	10:21	17:53	8.0	7.1	10.7	3.0	M	M	19	2:45	6:05	11:40	19:18	9.7	8.7	9.9	1.9	M	19	1:10	5:25	10:22	17:53	9.8	8.5	9.3	2.8		
	S	20	1:55	6:05	11:09	18:48	8.7	7.9	10.6	2.1		Tu	20	3:31	7:21	12:49	20:07	10.2	8.7	9.7	1.7		Tu	20	2:11	6:55	11:50	18:50	10.1	8.3	9.1	2.9	
	S	21	3:03	6:11	11:56	19:36	9.2	8.4	10.5	1.4		W	21	4:09	8:29	13:56	20:52	10.4	8.7	9.6	1.8		W	21	2:49	8:06	13:14	19:44	10.3	7.8	9.1	3.1	
S	M	22	3:52	7:10	12:46	20:25	9.9	8.7	10.4	0.9	Th	Th	22	4:42	9:21	14:58	21:34	10.6	7.9	9.8	2.1	Th	22	3:23	8:50	14:24	20:19	10.5	7.3	9.2	3.4		
	Tu	23	4:35	8:20	13:40	21:09	10.3	8.8	10.4	0.8		F	23	5:12	10:09	15:53	22:12	10.7	7.0	9.6	2.5		F	23	3:52	9:24	15:19	21:14	10.5	6.7	9.4	3.8	
	W	24	5:12	9:13	14:35	21:51	10.7	8.6	10.2	0.9		S	24	5:36	10:50	16:44	22:51	10.7	6.9	9.3	3.2		S	24	4:18	9:54	16:05	21:53	10.4	6.0	9.5	4.4	
Th	Th	25	5:48	10:14	15:31	22:30	10.9	8.4	10.0	1.2	E	S	25	6:00	11:33	17:33	23:29	10.6	6.3	9.1	4.0	E	S	25	4:41	10:26	16:55	22:28	10.2	5.4	9.5	5.0	
	F	26	6:24	11:12	16:28	23:09	10.9	8.0	9.5	1.8		M	26	6:26	12:16	18:25		10.4	5.8	8.8			M	26	5:08	10:59	17:40	23:01	10.0	4.8	9.5	5.5	
	S	27	6:51	12:05	17:24	23:48	11.1	7.7	9.2	2.5		Tu	27	0:04	6:50	12:59	19:19	4.9	10.2	5.3	8.6		Tu	27	5:25	11:33	18:29	23:34	9.9	4.2	9.4	6.2	
S	S	28	7:20	13:04	18:21		11.0	7.1	8.5		W	W	28	0:38	7:15	13:36	20:21	5.8	10.1	4.9	8.3	A	W	28	5:49	12:10	19:15		9.8	4.0	9.1		
	M	29	0:30	7:50	14:05	19:24	3.4	10.8	6.6	8.0		Th	29	0:09	6:11	12:44	20:06						Th	29	0:09	6:11	12:44	20:06	6.9	9.7	8.8	9.1	
	Tu	30	1:09	8:20	14:58	20:36	4.7	10.6	6.0	7.7		F	30	0:47	6:24	13:25	21:05						F	30	0:47	6:24	13:25	21:05	7.4	9.5	8.6	9.1	
W	W	31	1:45	8:48	15:44	22:08	5.7	10.3	5.4	7.5	S	S	31	1:20	6:41	14:12	22:15					S	31	1:20	6:41	14:12	22:15	7.9	9.3	8.5	9.1		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	2:11 8.4	6:43 9.0	15:06 8.5	23:32 9.4	☾	Tu	1	4:20 8.4	6:38 8.5	15:17 8.3	23:20 10.5	☾	F	1	5:48 6.1	11:12 7.4	16:34 5.3	23:29 10.7
	M	2	3:50 8.6	7:10 8.7	16:04 8.5			W	2	5:40 7.7	8:52 7.9	16:19 3.8		E	S	2	6:22 4.9	13:01 7.9	17:35 6.1	
	Tu	3	0:36 9.7	5:10 8.4	8:45 8.5	17:05 3.5		Th	3	0:01 10.5	6:24 7.2	11:13 7.6	17:21 4.4		S	3	0:04 10.7	7:05 3.6	14:21 8.6	18:34 6.8
	W	4	1:20 10.0	6:34 7.9	11:00 8.3	18:08 3.5		F	4	0:40 10.6	7:00 6.1	12:55 7.9	18:20 4.9		M	4	0:42 10.8	7:48 2.4	15:25 9.4	19:31 7.2
	Th	5	1:55 10.3	7:15 7.3	12:42 8.4	19:01 3.6	E	S	5	1:12 10.5	7:37 5.0	14:09 8.8	19:14 5.4	P	Tu	5	1:25 10.8	8:31 1.4	16:19 10.0	20:15 7.5
	F	6	2:23 10.5	7:58 6.5	13:58 8.9	19:58 3.8		S	6	1:42 10.5	8:12 3.8	15:05 9.4	20:05 5.9	☉	W	6	2:08 10.9	9:14 0.6	17:10 10.5	21:29 8.0
	S	7	2:51 10.6	8:37 6.5	14:51 9.4	20:40 4.2		M	7	2:15 10.6	8:50 2.6	16:00 10.0	20:55 6.4		Th	7	2:41 11.0	9:58 0.2	17:58 10.9	22:04 8.3
E	S	8	3:19 10.6	9:18 4.4	15:46 9.8	21:25 4.7	☉	Tu	8	2:57 10.7	9:32 1.7	16:54 10.6	21:40 7.0	S	F	8	3:21 10.7	10:41 0.1	18:45 11.1	23:10 8.5
☉	M	9	3:48 10.6	9:59 3.4	16:42 10.2	22:10 5.2	P	W	9	3:30 10.8	10:15 1.1	17:48 10.6	22:27 7.4		S	9	4:05 10.4	11:26 0.4	19:31 11.2	
P	Tu	10	4:22 10.7	10:41 2.6	17:38 10.4	22:56 6.0		Th	10	4:04 10.7	11:00 0.7	18:42 10.6	23:18 7.8		S	10	0:07 8.6	4:53 9.9	12:13 12.3	20:14 11.2
	W	11	4:59 10.7	11:24 2.1	18:35 10.4	23:41 6.7	S	F	11	4:41 10.4	11:47 0.7	19:37 10.7			M	11	1:26 8.4	5:49 9.2	13:01 1.8	20:59 11.3
	Th	12	5:32 10.6	12:11 1.9	19:35 10.4			S	12	0:08 8.3	5:22 10.1	12:35 1.1	20:35 10.7		Tu	12	3:08 7.9	7:08 8.5	13:49 2.8	21:44 11.2
	F	13	0:24 7.4	6:08 10.3	13:01 1.8	20:40 10.2	☉	S	13	1:31 8.5	6:06 9.6	13:28 1.7	21:32 10.8	☉	W	13	4:47 7.3	8:34 7.7	14:46 3.9	22:27 11.1
S	S	14	1:31 7.9	6:49 9.9	13:58 2.1	21:53 10.0	☉	M	14	3:08 8.4	7:08 8.8	14:22 2.5	22:28 10.9	E	Th	14	5:53 6.4	10:22 7.3	15:42 5.1	23:30 10.8
☉	S	15	2:46 8.3	7:37 9.4	14:58 2.6	23:10 10.2		Tu	15	5:12 7.8	8:37 8.0	15:21 3.4	23:22 10.8		F	15	6:37 5.5	12:20 7.4	16:37 6.1	23:45 10.4
	M	16	4:26 8.3	8:45 8.9	16:04 3.1			W	16	6:28 7.2	10:31 7.7	16:30 4.3			S	16	7:07 4.8	13:51 8.0	17:32 7.1	
	Tu	17	0:17 10.3	6:21 7.9	10:25 8.4	17:10 8.6		Th	17	0:10 10.8	7:18 6.4	12:25 7.8	17:36 5.2		S	17	0:14 10.2	7:39 3.9	14:58 8.6	18:27 7.5
	W	18	1:09 10.4	7:31 7.2	12:14 8.1	18:14 4.1	E	F	18	0:51 10.6	7:50 5.4	13:52 8.2	18:32 6.0	A	M	18	0:37 10.1	8:04 3.1	15:52 9.2	19:15 8.9
	Th	19	1:52 10.5	8:14 6.5	13:40 8.4	19:15 4.6		S	19	1:23 10.3	8:10 4.7	14:57 8.7	19:19 6.7		Tu	19	1:06 9.9	8:30 2.5	16:38 9.5	19:54 8.3
	F	20	2:25 10.4	8:43 5.9	14:44 8.9	20:05 5.2		S	20	1:48 10.1	8:34 8.9	15:48 9.2	20:02 7.3		W	20	1:25 9.8	8:58 2.0	17:16 9.9	20:37 8.7
E	S	21	2:56 10.1	9:05 5.2	15:38 9.3	20:46 5.7		M	21	2:08 10.0	8:59 3.2	16:34 9.5	20:41 7.5	●	Th	21	1:28 9.7	9:26 1.6	17:49 10.2	21:17 8.3
●	S	22	3:18 10.0	9:29 4.5	16:26 9.6	21:21 6.2	A	Tu	22	2:41 9.9	9:24 2.6	17:17 9.7	21:15 7.8	N	F	22	1:32 9.7	9:58 1.3	18:22 10.5	22:06 8.9
	M	23	3:35 9.9	9:51 8.8	17:06 9.8	21:53 6.7	●	W	23	2:53 9.8	9:52 2.2	17:57 10.0	21:45 8.1		S	23	2:00 9.7	10:31 1.1	18:49 10.8	22:59 8.7
	Tu	24	4:01 9.8	10:24 3.8	17:50 9.9	22:27 7.2		Th	24	2:55 9.7	10:23 1.8	18:33 10.2	22:28 8.4		S	24	2:40 9.6	11:08 1.2	19:16 11.1	23:35 8.6
A	W	25	4:22 9.6	10:53 2.9	18:30 9.8	23:03 7.5		F	25	2:59 9.6	10:56 1.6	19:07 10.4	23:13 8.7		M	25	3:32 9.4	11:47 1.5	19:48 11.2	
	Th	26	4:32 9.5	11:25 2.6	19:12 9.8	23:35 7.8	N	S	26	3:11 9.6	11:31 1.5	19:43 10.7			Tu	26	0:54 8.4	4:34 9.0	12:30 2.0	20:22 11.2
	F	27	4:35 9.4	12:01 2.5	19:57 9.9			S	27	0:19 8.9	3:39 9.5	12:10 1.7	20:21 10.9		W	27	2:07 7.8	5:56 8.4	13:16 2.9	20:54 11.2
	S	28	0:22 8.1	4:40 9.3	12:42 2.5	20:46 10.0		M	28	1:15 8.8	4:18 9.1	12:54 2.1	21:02 11.0		Th	28	3:12 7.1	7:33 7.8	14:02 4.0	21:35 11.0
	S	29	1:23 8.4	4:59 9.2	13:26 2.6	21:38 10.2		Tu	29	2:33 8.5	5:12 8.7	13:43 2.6	21:42 10.9	☾	F	29	4:10 6.8	9:21 7.5	14:54 5.1	21:56 10.9
	M	30	2:51 8.0	5:33 8.9	14:17 2.9	22:30 10.4	☾	W	30	4:00 8.0	6:50 8.1	14:36 3.5	22:20 10.8	E	S	30	4:57 5.1	11:14 7.5	15:51 6.2	22:33 10.8
								Th	31	5:04 7.2	9:08 7.5	15:33 4.4	22:54 10.8							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Chart for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the sounding given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ☉, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										AUGUST.										SEPTEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
P U S	S	1	5:50 3.9	13:10 8.0	16:58 7.1	23:10 10.9				W	1	7:09 1.6	15:28 9.5	18:41 8.7						S	1	1:33 9.7	8:28 2.0	16:13 10.5	20:54 7.7				
	M	2	6:39 2.7	14:34 8.6	18:00 7.5	23:56 10.9				S	Th	2	0:11 10.6	7:57 1.1	16:10 10.2	19:50 8.8				○	S	2	2:40 9.6	9:12 2.3	16:44 10.6	21:42 7.2			
	Tu	3	7:28 1.6	15:34 9.3	18:56 8.1					F	3	1:11 10.4	8:44 0.9	16:48 10.6	20:43 8.6					M	3	3:40 9.7	9:54 2.7	17:10 10.7	22:27 6.6				
	W	4	8:38 10.9	8:14 0.9	16:23 9.9	19:50 8.4			○	S	4	2:13 10.3	9:29 0.9	17:22 10.7	21:38 8.2					Tu	4	4:33 9.6	10:35 3.3	17:35 10.5	23:09 5.9				
	Th	5	1:23 10.8	8:59 0.4	17:06 10.3	20:48 8.6				S	5	3:14 10.2	10:11 1.2	17:34 10.9	22:40 7.6				E	W	5	5:24 9.5	11:15 4.2	18:03 10.4	23:51 5.4				
	F	6	2:11 10.7	9:43 0.1	17:47 10.7	21:47 8.6				M	6	4:13 9.8	10:51 1.8	18:26 10.9	23:35 7.4					Th	6	6:15 9.2	11:51 5.1	18:30 10.2					
	S	7	3:03 10.5	10:26 0.2	18:27 11.0	22:46 8.5				Tu	7	5:10 9.5	11:31 2.5	18:55 10.9						F	7	7:07 4.9	12:27 9.0	18:58 5.9	19:26 10.0				
	S	8	3:58 10.1	11:09 0.7	19:06 11.2	23:55 8.2			E	W	8	6:09 6.9	12:09 9.0	19:26 8.4	19:26 10.8					S	8	1:15 4.6	8:10 8.8	13:04 6.7	19:26 9.7				
	M	9	4:56 9.5	11:52 1.4	19:39 11.3					Th	9	1:26 6.3	7:09 8.4	12:54 4.7	19:56 10.5				A	S	9	2:03 4.3	9:20 8.6	13:36 7.8	19:57 9.4				
	Tu	10	1:06 7.8	5:59 8.9	12:34 2.4	20:16 11.2				F	10	2:22 5.8	8:15 8.1	13:32 5.7	20:26 10.3				○	M	10	2:56 4.2	10:53 8.6	14:35 7.9	20:20 9.1				
	W	11	2:23 7.3	7:09 8.2	13:21 3.5	20:52 11.1			○	S	11	3:11 5.3	9:40 7.9	14:10 6.6	20:56 10.1					Tu	11	3:50 4.1	12:32 8.9	16:00 8.8	20:40 8.9				
	Th	12	3:37 6.7	8:27 7.7	14:04 4.8	21:29 10.8			A	S	12	4:09 4.7	11:29 7.8	14:55 7.3	21:29 9.8					N	W	12	4:43 3.9	13:40 9.4	17:30 8.6	21:32 8.6			
N ●	F	13	4:38 5.8	9:59 7.4	14:53 6.0	22:02 10.5				M	13	5:03 4.2	13:20 8.3	15:50 7.9	22:09 9.5					Th	13	5:37 3.8	14:20 9.7	18:35 8.6	22:47 8.5				
	S	14	5:30 5.2	12:00 7.7	15:40 6.9	22:35 10.2				Tu	14	5:53 3.7	14:33 8.6	16:54 8.5	22:37 9.8					F	14	6:25 3.5	14:49 10.1	19:26 8.1					
	S	15	6:09 4.4	13:44 8.2	16:33 7.2	23:01 10.0				W	15	6:35 3.2	15:17 9.8	18:20 8.7	22:56 9.2					S	15	7:04 8.5	15:14 8.4	19:32 10.3	20:07 7.6				
	M	16	6:52 3.6	14:56 8.7	17:33 8.2	23:35 9.8			N	Th	16	7:15 2.8	15:49 9.8	19:15 8.8	22:59 9.1					S	16	1:35 8.7	8:05 8.2	15:35 10.4	20:43 7.1				
	Tu	17	7:25 3.0	15:46 9.2	18:35 8.7					F	17	7:54 2.4	16:16 10.1	20:19 8.6						M	17	2:37 9.1	8:48 8.2	15:57 10.6	21:21 6.0				
	W	18	8:08 9.6	7:56 2.4	16:25 9.7	19:19 8.8				S	18	1:09 9.2	8:31 2.1	16:38 10.4	20:56 8.1				●	Tu	18	3:28 9.4	9:32 8.5	16:25 10.6	22:01 6.2				
	Th	19	9:17 9.7	8:27 2.0	16:57 10.0	20:25 9.0			●	S	19	2:10 9.2	9:10 2.0	16:58 10.7	21:37 7.5				E	W	19	4:19 9.7	10:15 4.1	16:49 10.6	22:45 4.3				
	F	20	9:35 9.7	9:00 1.6	17:25 10.5	21:03 8.9				M	20	3:11 9.3	9:51 2.0	17:20 10.8	22:27 7.0					Th	20	5:10 9.8	10:56 4.7	17:18 10.6	23:30 3.5				
	S	21	1:22 9.7	9:34 1.3	17:50 10.7	21:53 8.7				Tu	21	4:02 9.3	10:33 2.4	17:46 10.9	23:10 6.5				P	F	21	6:07 9.9	11:38 5.5	17:53 10.4					
	S	22	2:18 9.7	10:10 1.2	18:12 10.8	22:43 8.3				E	W	22	4:58 9.4	11:14 3.1	18:12 10.9	23:59 5.6					S	22	7:04 3.1	12:09 9.9	18:23 6.4	23:30 10.2			
	M	23	3:21 9.6	10:49 1.4	18:36 11.1	23:36 7.8				Th	23	5:57 9.3	11:55 4.1	18:41 10.8						S	23	1:00 2.8	8:13 9.7	13:12 7.2	19:02 10.2				
	Tu	24	4:22 9.3	11:29 1.9	19:06 11.2					F	24	6:48 4.9	12:59 9.0	19:13 5.1	20:13 10.7				D	M	24	1:55 2.5	9:29 9.4	14:04 7.8	19:41 10.0				
	W	25	5:26 7.3	12:11 8.9	19:33 2.6	11:2				S	25	1:34 4.2	8:10 8.8	13:26 6.1	19:48 10.5					S	Tu	25	2:57 2.8	11:00 9.6	15:20 8.3	20:32 9.5			
E D	Th	26	1:26 6.7	6:38 8.5	12:58 3.8	20:04 11.0			D	S	26	2:31 8.7	9:31 8.5	14:14 6.9	20:30 10.4					W	26	4:02 2.7	12:29 9.9	16:49 8.6	21:39 9.2				
	F	27	2:24 6.0	7:56 8.1	13:38 4.9	20:35 10.9			P	M	27	3:34 8.2	11:16 8.7	15:13 7.7	21:10 10.2					Th	27	5:10 2.9	13:28 10.0	18:22 8.3	23:11 8.9				
	S	28	3:15 5.0	9:26 7.7	14:25 6.0	21:08 10.8				Tu	28	4:40 2.8	13:02 8.9	16:15 8.3	21:59 10.0					F	28	6:19 8.1	14:15 10.8	19:33 7.6					
	S	29	4:15 4.1	11:18 7.9	15:19 7.1	21:49 10.7				S	W	29	5:45 2.4	14:12 9.6	17:34 8.7	23:02 9.8					S	29	7:09 8.9	15:12 8.4	19:52 10.5	20:22 7.0			
	M	30	5:16 3.2	13:17 8.3	16:27 7.7	22:34 10.6				Th	30	6:44 2.1	15:00 9.9	18:56 8.6						S	30	8:05 9.0	16:21 8.7	20:00 10.5	21:00 6.4				
	Tu	31	6:14 2.3	14:36 9.0	17:37 8.3	23:19 10.6				F	31	7:38 9.8	15:40 2.0	20:04 8.2															

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
EC	M	1	3:00 9.3	8:53 4.1	15:50 10.4	21:32 5.6	Th	1	5:00 9.8	9:38 7.0	15:43 9.9	22:10 2.9	A	S	1	5:51 10.0	9:31 8.4	14:45 9.8	22:15 1.8													
	Tu	2	3:58 9.6	9:36 4.7	16:14 10.2	22:06 4.9	F	2	5:45 9.9	10:14 7.4	16:08 9.8	22:40 2.6	N	S	2	6:30 10.3	10:13 8.7	14:50 9.8	22:45 1.6													
	W	3	4:43 9.7	10:12 5.2	16:39 10.1	22:41 4.3	S	3	6:30 10.0	10:42 7.7	16:15 9.6	23:12 2.4	M	3	7:06 10.5	11:00 8.9	14:59 9.7	23:21 1.6														
	Th	4	5:34 9.8	10:46 5.9	17:02 10.0	23:15 3.8	A	S	4	7:12 10.1	11:20 8.1	16:10 9.4	23:47 2.3	Tu	4	7:40 10.7	11:50 8.9	15:10 9.5	23:56 1.8													
	F	5	6:21 9.7	11:21 6.6	17:32 9.8	23:51 3.6	M	5	7:52 10.2	12:08 8.5	16:20 9.2		W	5	8:11 10.9	13:06 8.9	15:48 9.3															
A	S	6	7:10 9.6	11:55 7.2	17:51 9.5		N	Tu	6	0:27 2.4	8:38 10.2	18:10 8.7	16:25 9.1	Th	6	0:37 2.1	8:46 11.0	14:15 8.6	16:30 8.5													
	S	7	0:27 3.4	8:00 9.5	12:34 7.5	18:06 9.3	W	7	1:06 2.4	9:25 10.3	14:40 8.8	16:45 8.9	F	7	1:21 2.7	9:20 10.9	15:45 8.0	16:27 8.3														
	M	8	1:08 3.4	8:57 9.4	13:26 7.8	18:10 9.1	Th	8	1:55 3.0	10:11 10.4	16:50 8.5	18:10 8.5	C	S	8	2:10 3.5	9:58 10.9	16:44 7.8	20:37 7.6													
	N	Tu	9	1:51 3.4	10:00 9.4	14:30 8.4	18:14 8.9	C	F	9	2:51 3.5	10:55 10.5	17:55 7.8	20:00 7.8	S	9	3:00 4.5	10:30 10.8	17:30 6.2	22:44 7.5												
	W	10	2:41 3.6	11:12 9.6	15:41 8.6	18:25 8.7	S	10	3:50 4.0	11:36 10.5	18:20 7.0	22:45 7.5	E	M	10	3:58 5.4	11:00 10.7	18:00 5.0														
C	Th	11	3:38 3.8	12:11 9.8	17:20 8.2	19:27 8.3	S	11	4:50 4.7	12:10 10.5	18:49 6.1		Tu	11	0:34 7.5	5:00 11.0	11:34 10.7	18:45 8.7														
	F	12	4:40 3.9	12:55 10.0	18:53 7.8	23:48 7.9	M	12	0:35 7.7	5:47 8.4	12:42 10.4	19:20 8.0	W	12	2:04 8.3	6:00 6.8	12:11 10.7	19:25 2.5														
	S	13	5:40 4.0	13:28 10.2	19:17 7.2		E	Tu	13	1:55 8.4	6:45 5.9	13:12 10.5	19:52 8.8	Th	13	3:10 9.0	6:58 7.4	12:55 10.9	20:10 1.5													
	S	14	0:35 8.0	6:37 4.2	13:56 10.4	19:49 6.4	W	14	2:56 9.1	7:38 6.3	13:45 10.6	20:31 2.6	F	14	4:05 9.8	7:50 7.8	13:32 11.0	20:54 0.7														
	M	15	1:50 8.4	7:28 4.9	14:28 10.3	20:24 5.4	Th	15	3:50 9.7	8:28 6.9	14:25 10.7	21:13 1.6	P	S	15	4:54 10.4	8:40 8.8	14:10 11.0	21:36 0.1													
E	Tu	16	2:45 9.0	8:15 4.8	14:51 10.4	21:00 4.3	P	F	16	4:42 10.3	9:15 7.3	15:00 10.8	21:52 0.9	S	S	16	5:39 10.8	9:35 8.5	14:55 10.9	22:20 -0.1												
	W	17	3:40 9.7	9:01 5.2	15:19 10.5	21:38 3.2	S	17	5:37 10.7	10:00 7.6	15:35 10.7	22:35 0.4	M	17	6:25 11.2	10:31 8.7	15:40 10.5	23:06 0.0														
	Th	18	4:30 10.1	9:48 5.7	15:53 10.6	22:20 2.4	S	18	6:25 10.8	10:50 8.0	16:10 10.5	23:22 0.3	Tu	18	7:08 11.3	11:35 8.7	16:30 10.3	23:50 0.5														
	P	F	19	5:23 10.4	10:31 6.4	16:27 10.6	23:00 1.8	S	M	19	7:18 11.0	11:46 8.4	16:50 10.3		W	19	7:49 11.4	12:45 8.5	17:30 9.4													
	S	20	6:18 10.5	11:15 7.2	16:59 10.5	23:44 1.4	Tu	20	0:10 0.6	8:11 11.0	13:00 8.6	17:36 9.8	Th	20	0:38 1.4	8:32 11.4	14:16 8.1	18:40 8.6														
S	S	21	7:14 10.5	12:02 7.4	17:38 10.3		W	21	1:00 1.2	9:05 11.2	14:25 8.5	18:35 9.9	F	21	1:25 2.4	9:13 11.4	15:48 7.4	20:00 8.0														
	M	22	0:32 1.4	8:17 10.5	13:05 8.0	18:12 10.0	D	Th	22	1:52 2.1	9:58 11.2	16:18 8.0	20:00 8.3	D	S	22	2:20 3.6	9:57 11.2	17:08 6.5	21:00 7.5												
	Tu	23	1:25 1.7	9:22 10.4	14:17 8.5	19:00 9.4	F	23	2:49 3.1	10:50 11.0	17:48 7.2	21:45 7.8	E	S	23	3:15 4.9	10:38 10.9	18:00 5.5	23:35 7.4													
	D	W	24	2:23 2.2	10:33 10.5	15:47 8.4	20:04 8.9	S	24	3:55 4.1	11:35 10.9	18:45 6.3	23:45 7.6	M	24	4:10 6.0	11:16 10.6	18:42 4.7														
	Th	25	3:25 2.8	11:37 10.4	17:43 8.0	21:40 8.4	E	S	25	5:00 5.1	12:18 10.7	19:25 5.3		Tu	25	1:25 8.0	5:05 7.0	11:49 10.4	19:21 3.2													
P	F	26	4:30 3.5	12:31 10.6	18:57 7.3	23:35 8.1	M	26	1:25 8.1	6:00 6.1	12:54 10.4	19:51 4.6	W	26	2:42 8.6	6:00 7.7	12:19 10.1	19:57 3.1														
	S	27	5:40 4.1	13:16 10.6	19:45 6.4		Tu	27	2:38 8.7	6:52 6.8	13:23 10.2	20:20 3.7	Th	27	3:40 9.1	6:55 8.2	12:50 10.0	20:21 2.5														
	S	28	1:13 8.3	6:46 4.8	13:55 10.5	20:20 5.6	W	28	3:35 9.2	7:39 7.4	13:50 10.0	20:50 3.0	A	F	28	4:28 9.5	7:28 8.5	13:21 9.8	20:51 2.0													
	E	M	29	2:26 8.8	7:37 5.4	14:26 10.2	20:46 5.0	Th	29	4:25 9.5	8:18 7.7	14:20 9.9	21:15 2.4	S	29	5:08 9.9	8:28 8.8	13:30 9.7	21:20 1.2													
	Tu	30	3:25 9.3	8:23 6.0	14:50 10.0	21:10 4.2	C	F	30	5:10 9.8	8:55 8.0	14:40 9.8	21:43 2.1	C	S	30	5:42 10.2	9:09 9.0	13:35 9.7	21:51 1.2												
W	31	4:15 9.6	9:02 6.5	15:14 9.9	21:38 3.4								N	M	31	6:14 10.5	9:55 9.0	13:45 9.6	22:21 1.4													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Chart for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the sounding given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Pacific Standard, 120th meridian W.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.  
 ●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.									
Moon.	Day of—		Time and Height of H Low Water.						
	W.	Mo.							
E D A	M	1	5:15	11:28	17:00				
	Tu	2	6:02	12:30	18:10				
	W	3	6:59	13:32	19:27				
	Th	4	7:46	14:42	20:40				
	F	5	8:33	15:44	21:42				
N O	S	6	9:06	16:27	22:30				
	S	7	9:50	17:05	23:05				
	Th	8	10:44	17:40	23:40				
	Tu	9	11:38	18:12	24:05				
	W	10	12:32	18:40	24:30				
P C S	Th	11	1:27	19:05	24:55				
	F	12	2:00	19:25	25:00				
	S	13	2:32	19:40	25:00				
	S	14	3:14	20:00	25:20				
	M	15	3:51	20:15	25:30				
E C P	Tu	16	4:36	20:40	25:50				
	W	17	5:19	21:00	26:10				
	Th	18	6:11	21:52	26:58				
	F	19	7:04	22:40	27:38				
	S	20	7:58	23:24	28:00				
S ●	S	21	8:12	23:28	28:06				
	M	22	8:12	23:28	28:06				
	Tu	23	8:19	23:32	28:06				
	W	24	8:42	23:38	28:06				
	Th	25	9:07	23:44	28:06				
E A	F	26	9:33	23:50	28:06				
	S	27	9:50	23:56	28:06				
	S	28	10:07	24:02	28:06				
	M	29	10:24	24:08	28:06				
	Tu	30	10:42	24:14	28:06				
W	W	31	11:00	24:20	28:06				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Sitka Standard, 135th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3.47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
N	S	1	4:30 10.3	11:27 4.1	18:06 8.4	23:27 6.9	D	Tu	1	4:58 10.0	11:52 3.7	18:49 9.3				F	1	1:22 5.6	7:10 9.4	13:25 4.2	20:00 11.0											
	M	2	5:28 9.9	12:35 4.3	19:30 8.4		W	2	0:36 6.9	6:11 9.6	13:00 8.9	19:55 9.8	E	S	2	2:25 4.7	8:32 9.7	14:30 4.5	20:50 11.5													
	Tu	3	0:57 7.2	6:47 9.7	13:51 4.2	20:48 9.0		Th	3	2:00 6.3	7:41 9.6	14:08 4.0	20:50 10.5		S	3	3:28 3.6	9:43 10.0	15:30 4.6	21:41 12.2												
	W	4	2:31 6.9	8:15 9.8	15:00 3.8	21:46 9.7		F	4	3:07 5.3	9:00 10.0	15:12 8.9	21:38 11.1		M	4	4:23 2.4	10:45 10.4	16:24 4.7	22:30 12.8												
	Th	5	3:38 6.1	9:28 10.3	15:56 8.3	22:27 10.6	E	S	5	3:55 4.1	10:05 10.7	16:10 3.7	22:23 11.9	P	Tu	5	5:12 1.2	11:40 10.8	17:15 4.7	23:18 13.2												
	F	6	4:30 4.9	10:29 11.1	16:46 2.9	23:07 11.5		S	6	4:45 2.9	11:00 11.4	16:58 3.6	23:07 12.5		W	6	6:01 0.4	12:32 11.1	18:04 4.8													
	S	7	5:14 3.7	11:20 11.9	17:32 2.6	23:45 12.3		M	7	5:31 1.8	11:50 11.8	17:43 3.6	23:48 13.1		Th	7	0:04 13.6	6:50 —0.1	13:23 11.2	18:53 4.9												
	O	S	8	6:00 2.6	12:09 12.3	18:15 2.5		P	Tu	8	6:15 0.9	12:39 11.9	18:29 3.7		S	F	8	0:50 18.6	7:35 —0.3	14:12 11.3	19:42 5.0											
	P	M	9	0:24 12.7	6:36 1.9	12:50 12.7	18:55 2.5		W	9	0:30 13.5	7:00 0.3	13:28 11.8	19:12 4.0		S	9	1:38 13.3	8:22 0.0	15:01 11.2	20:32 5.2											
		Tu	10	1:01 13.1	7:17 1.2	13:36 12.6	19:36 2.9		Th	10	1:10 13.5	7:47 0.1	14:16 11.6	19:56 4.4		S	10	2:25 12.7	9:10 0.6	15:49 11.1	21:27 5.4											
W		11	1:40 13.2	8:02 0.9	14:23 12.1	20:18 3.6	S	F	11	1:55 13.3	8:35 0.3	15:06 11.2	20:43 4.9		M	11	3:17 11.9	10:00 1.4	16:40 11.0	22:28 5.6												
Th		12	2:20 13.1	8:50 1.0	15:15 11.4	21:01 4.3		S	12	2:42 12.8	9:25 0.8	16:08 10.7	21:39 5.4		Tu	12	4:15 11.0	10:50 2.4	17:35 10.9	23:36 5.7												
F		13	3:02 12.6	9:40 1.4	16:09 10.6	21:50 5.1		S	13	3:32 12.0	10:19 1.5	17:03 10.4	22:40 6.0	C	W	13	5:18 10.0	11:42 3.3	18:30 11.0													
S		14	3:50 12.0	10:35 2.0	17:13 9.9	22:50 5.9	C	M	14	4:30 11.1	11:17 2.4	18:07 10.3	23:59 6.2	E	Th	14	0:50 5.6	6:30 9.3	12:39 4.2	19:26 11.0												
S		15	4:48 11.2	11:40 2.7	18:30 9.6			Tu	15	5:42 10.2	12:22 3.3	19:15 10.3		F	15	2:00 5.3	7:50 8.8	13:45 4.9	20:20 11.0													
M		16	0:07 6.5	5:57 10.5	12:55 3.2	19:52 9.6		W	16	1:23 6.1	7:05 9.6	13:28 3.9	20:18 10.6		S	16	3:05 4.8	9:07 8.8	14:45 5.4	21:08 11.1												
E		Tu	17	1:40 6.6	7:25 10.0	14:13 3.5	21:07 10.0		Th	17	2:48 5.5	8:30 9.4	14:34 4.4	21:12 10.9		S	17	4:00 4.2	10:14 8.8	15:35 5.8	21:53 11.2											
		W	18	3:07 6.0	8:52 10.0	15:24 3.7	21:59 10.6	E	F	18	3:42 4.7	9:40 9.5	15:36 4.6	21:59 11.1	A	M	18	4:45 3.5	11:07 9.0	16:22 6.1	22:25 11.4											
	Th	19	4:10 5.2	10:02 10.3	16:15 3.8	22:41 11.1		S	19	4:30 4.1	10:38 9.8	16:25 4.8	22:35 11.4		Tu	19	5:24 2.9	11:52 9.3	17:03 6.2	23:00 11.6												
	F	20	4:57 4.3	10:58 10.6	17:03 3.8	23:17 11.4		S	20	5:12 3.4	11:26 10.0	17:05 5.1	23:08 11.7		W	20	5:55 2.3	12:31 9.5	17:41 6.3	23:35 11.8												
	S	21	5:34 3.6	11:43 10.9	17:42 3.9	23:51 11.7		M	21	5:47 2.8	12:07 10.0	17:39 5.3	23:39 11.8	●	Th	21	6:23 1.8	13:05 9.7	18:18 6.2													
	S	22	6:09 3.1	12:21 11.0	18:15 4.0		A	Tu	22	6:20 2.4	12:44 10.1	18:11 5.5		N	F	22	0:08 11.9	7:00 1.5	13:39 9.9	18:53 6.1												
	●	M	23	0:20 11.9	6:40 2.7	12:57 11.0	18:45 4.4		W	23	0:08 11.9	6:50 2.0	13:18 10.0	18:41 5.7		S	23	0:43 12.0	7:31 1.4	14:10 10.1	19:29 6.0											
	A	Tu	24	0:47 12.0	7:13 2.5	13:31 10.7	19:11 4.7		Th	24	0:37 11.9	7:20 1.8	13:52 10.0	19:13 5.8		S	24	1:18 11.9	8:06 1.4	14:44 10.3	20:09 6.0											
		W	25	1:12 11.9	7:42 2.3	14:08 10.4	19:40 5.0		F	25	1:06 11.9	7:50 1.8	14:25 9.9	19:45 5.9		M	25	1:58 11.8	8:41 1.5	15:21 10.5	20:53 5.9											
		Th	26	1:39 11.8	8:13 2.4	14:37 10.1	20:10 5.4	N	S	26	1:37 11.7	8:22 1.8	15:00 9.9	20:21 6.1		Tu	26	2:40 11.4	9:20 1.9	16:03 10.8	21:44 5.8											
F		27	2:06 11.6	8:45 2.5	15:14 9.7	20:42 5.8		S	27	2:12 11.5	9:00 2.0	15:42 9.9	21:05 6.3		W	27	3:28 10.9	10:02 2.4	16:45 11.0	22:40 5.7												
S		28	2:38 11.3	9:21 2.7	15:54 9.4	21:19 6.2		M	28	2:52 11.2	9:41 2.3	16:27 10.0	21:57 6.5		Th	28	4:23 10.3	10:48 3.1	17:30 11.1	23:40 5.4												
S		29	3:11 10.9	10:04 3.0	16:44 9.3	22:06 6.6		Tu	29	3:38 10.6	10:26 2.7	17:17 10.1	22:58 6.5	E	F	29	5:29 9.7	11:43 3.9	18:20 11.2													
M		30	3:55 10.4	10:54 3.4	17:43 9.2	23:09 6.9	D	W	30	4:36 10.1	11:18 3.2	18:11 10.3			S	30	0:43 4.9	6:46 9.4	12:43 4.6	19:12 11.5												
								Th	31	0:09 6.3	5:47 9.7	12:17 3.8	19:06 10.6																			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Sitka Standard, 135th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon	Day of	Time and Height of High and Low Water.				Moon	Day of	Time and Height of High and Low Water.				Moon	Day of	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
S	1	1:55	8:09	13:48	20:10	W	1	2:3	10:30	15:45	21:45	S	1	5:24	11:57	17:40	23:35
		4.2	9.2	5.1	11.7			2.3	9.3	6.2	12.1			1.6	11.0	4.8	12.8
M	2	3:06	9:25	14:54	21:05	Th	2	4:49	11:28	16:48	22:44	S	2	6:07	12:34	18:23	...
		3.2	9.3	5.4	12.2			1.6	10.0	5.8	12.6			1.4	11.6	4.2	...
Tu	3	4:03	10:34	16:58	22:01	F	3	5:39	12:15	17:43	23:38	M	3	0:23	6:45	13:06	19:08
		2.2	9.6	5.5	12.6			0.9	10.6	5.4	12.9			12.5	1.5	12.0	3.7
W	4	5:00	11:34	18:56	22:55	S	4	6:24	12:57	18:31	...	Tu	4	1:07	7:20	13:38	19:43
		1.2	10.0	5.5	13.0			0.5	11.2	4.9	...			12.4	1.9	12.2	3.8
Th	5	5:50	12:25	19:50	23:46	S	5	0:23	7:06	13:38	19:18	W	5	1:48	7:58	14:10	20:22
		0.4	10.6	5.3	13.4			11.7	0.5	11.6	4.5			12.0	2.5	12.2	3.2
F	6	6:36	13:13	18:40	...	M	6	1:15	7:48	14:14	...	Th	6	2:27	8:32	14:45	20:57
		0.0	10.9	5.2	...			12.3	0.8	11.9	4.2			11.5	3.1	11.9	3.4
S	7	0:35	7:22	14:00	19:30	Tu	7	2:00	8:25	14:48	20:48	F	7	3:06	9:05	15:15	21:35
		13.4	-0.1	11.3	5.0			12.4	1.4	12.0	4.1			10.8	4.0	11.6	3.7
S	8	1:25	8:05	14:42	20:20	W	8	2:45	9:00	15:25	21:35	S	8	3:47	9:37	15:50	22:21
		13.1	0.2	11.5	4.9			11.7	2.2	11.9	4.2			9.9	4.8	11.2	4.0
M	9	2:13	8:50	15:23	21:12	Th	9	...	...	16:05	22:30	S	9	4:31	10:11	16:25	22:10
		12.6	0.8	11.6	4.9			10.9	3.1	11.7	4.4			9.1	5.6	10.7	4.4
Tu	10	3:01	9:38	16:06	22:06	F	10	4:17	10:11	16:42	23:10	M	10	5:25	10:50	17:10	...
		11.8	1.6	11.5	5.0			10.0	4.1	11.2	4.7			9.4	6.4	10.2	...
W	11	3:53	10:15	16:51	23:03	S	11	5:10	11:00	17:24	...	Tu	11	0:10	6:48	11:50	18:06
		10.9	2.6	11.5	5.1			9.1	5.1	10.9	...			4.6	8.0	7.0	9.9
Th	12	4:40	11:00	17:38	...	S	12	0:06	6:15	11:11	18:10	W	12	1:22	8:25	13:17	19:20
		10.0	3.6	11.8	...			4.9	8.3	5.0	10.5			4.6	8.0	7.2	9.7
F	13	0:08	5:50	11:51	18:27	M	13	1:17	7:40	12:38	19:05	Th	13	2:32	9:40	14:46	20:35
		6.2	9.2	4.6	11.0			4.9	7.9	6.7	10.3			4.3	8.6	7.2	9.9
S	14	1:09	7:08	12:42	19:18	Tu	14	2:27	9:12	13:55	20:07	F	14	3:32	10:24	15:58	21:40
		5.1	8.5	5.5	10.8			4.6	7.9	7.7	10.2			8.7	9.3	6.7	10.4
S	15	2:18	8:27	13:42	20:10	W	15	3:30	10:22	15:11	21:09	S	15	4:31	11:00	16:40	22:32
		4.8	8.2	6.1	10.7			4.0	8.4	7.0	10.5			3.1	10.1	5.8	11.1
M	16	3:20	9:45	14:44	21:00	Th	16	4:18	11:06	16:18	22:02	S	16	5:02	11:30	17:22	...
		4.3	8.2	6.6	10.8			3.3	9.0	6.8	10.9			2.6	10.9	4.9	11.7
Tu	17	4:12	10:47	15:43	21:45	F	17	4:58	11:43	17:00	22:50	M	17	5:40	12:00	18:00	...
		3.7	8.6	6.7	10.9			2.7	9.7	6.4	11.4			2.2	11.6	8.9	...
W	18	4:58	11:38	16:35	22:28	S	18	...	12:15	17:43	23:35	Tu	18	0:04	6:17	12:38	18:38
		3.0	9.0	6.7	11.3			2.0	10.3	5.8	11.8			12.2	2.0	12.2	3.0
Th	19	5:30	12:10	17:20	23:10	S	19	6:10	12:42	18:30	...	W	19	0:43	6:57	13:10	19:19
		2.4	9.4	6.5	11.6			1.6	10.9	5.1	...			12.5	2.0	12.6	2.8
F	20	6:05	12:45	18:00	23:50	M	20	0:15	6:43	18:12	19:00	Th	20	...	7:37	13:46	...
		1.8	9.8	6.3	11.3			12.2	1.3	11.4	4.4			12.5	2.3	12.7	2.0
S	21	6:38	13:17	18:39	...	Tu	21	0:57	7:21	18:45	19:38	F	21	1:10	8:15	14:21	20:38
		1.4	10.3	6.0	...			12.4	1.4	11.9	3.9			12.3	2.9	12.7	1.9
S	22	0:28	7:11	13:46	19:17	W	22	1:39	7:57	14:18	20:20	S	22	2:55	8:55	15:01	21:28
		12.0	1.2	10.7	5.5			12.4	1.6	12.2	3.4			11.7	3.7	12.5	2.0
M	23	1:07	7:45	14:18	19:56	Th	23	2:28	8:35	14:52	21:01	S	23	3:47	9:39	15:45	22:21
		12.2	1.2	11.0	5.2			12.1	2.2	12.3	3.2			10.9	4.6	12.0	2.4
Tu	24	1:48	8:21	14:53	20:40	F	24	3:10	9:20	15:32	21:49	M	24	4:48	10:30	16:35	23:25
		12.0	1.4	11.4	4.9			11.6	3.0	12.1	3.1			9.9	5.4	11.5	2.8
W	25	2:31	9:00	15:29	21:25	S	25	3:56	10:00	16:15	22:42	Tu	25	6:01	11:35	17:40	...
		11.8	1.8	11.6	4.6			10.9	3.9	11.8	3.2			9.2	6.3	11.0	...
Th	26	3:18	9:40	16:06	22:15	S	26	4:54	...	17:05	23:48	W	26	...	7:34	13:02	19:00
		11.3	2.5	11.7	4.5			9.9	4.9	11.5	3.4			8.2	9.1	6.7	10.6
F	27	4:11	10:25	16:50	23:08	M	27	6:07	11:45	18:02	...	Th	27	2:08	9:01	14:37	20:25
		10.6	3.4	11.6	4.3			9.1	5.8	11.3	...			3.2	9.5	6.5	10.5
S	28	5:12	11:13	17:38	...	Tu	28	1:05	7:41	13:00	19:12	F	28	3:16	10:05	15:50	21:40
		9.9	4.3	11.5	...			3.5	8.7	6.4	11.1			3.0	10.1	5.8	10.8
S	29	0:13	6:22	12:10	18:35	W	29	2:25	9:15	14:29	20:30	S	29	4:15	10:50	16:46	22:42
		4.1	9.2	5.1	11.5			3.2	8.9	6.6	11.2			2.8	10.8	4.9	11.3
M	30	1:27	7:50	13:15	19:35	Th	30	3:38	10:25	15:48	21:40	S	30	5:08	11:27	17:31	23:33
		3.7	8.8	5.8	11.6			2.6	9.6	6.2	11.5			2.7	11.5	4.0	11.7
Tu	31	2:42	9:18	14:30	20:41	F	31	4:35	11:15	...	22:42						
		3.1	8.8	6.2	11.8			2.1	10.3	5.6	12.0						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Sitka Standard, 136th meridian W.; 0 is midnight, 12 is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m. ●, new moon, ☾, 1st quar., ○, full moon, ☾, 3d quar., E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.										NOVEMBER.										DECEMBER.									
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.								Moon.	Day of— W. Mo.	Time and Height of High and Low Water.								Moon.	Day of— W. Mo.	Time and Height of High and Low Water.							
E	M 1	5:45	12:00	18:11	2.7	11.9	3.2			Th 1	0:44	6:28	12:28	18:58	11.0	4.5	12.2	2.0	A	S 1	1:10	6:30	12:25	19:10	10.1	5.8	12.1	1.6	
	Tu 2	0:18	6:25	12:37	11.9	2.8	12.1	2.7		F 2	1:20	6:57	12:56	19:30	10.7	4.8	12.2	2.0		S 2	1:45	7:05	12:55	19:41	10.1	5.9	11.9	1.6	
	W 3	0:55	6:57	13:05	11.9	3.1	12.2	2.6		S 3	1:55	7:28	13:24	20:04	10.5	5.2	12.0	2.0	N	M 3	2:17	7:31	13:25	20:11	10.0	6.0	11.8	1.7	
	Th 4	1:31	7:28	13:34	11.6	3.6	12.2	2.6		A	S 4	2:28	7:56	13:52	20:35	10.1	5.5	11.6	2.3		Tu 4	2:50	8:08	13:58	20:44	9.9	6.2	11.5	1.9
	F 5	2:07	7:59	14:01	11.0	4.1	12.0	2.6		M 5	3:04	8:26	14:22	21:08	9.8	5.9	11.3	2.6		W 5	3:26	8:48	14:34	21:21	9.9	6.4	11.1	2.3	
A	S 6	2:43	8:27	14:30	10.4	4.7	11.6	2.9		N	Tu 6	3:44	9:05	14:55	21:45	9.4	6.4	10.8	3.0		Th 6	4:06	9:35	15:18	22:04	10.1	6.5	10.6	2.7
	S 7	3:20	8:59	15:01	9.8	5.4	11.2	3.8		W 7	4:30	9:50	15:35	22:31	9.2	6.8	10.3	3.4		F 7	4:54	10:32	16:08	22:50	10.2	6.6	10.1	3.3	
	M 8	4:02	9:32	15:38	9.2	6.0	10.7	3.8		Th 8	5:26	10:55	16:28	23:25	9.3	7.1	9.7	3.8	C	S 8	5:42	11:40	17:12	23:44	10.3	6.4	9.5	3.8	
	Tu 9	4:58	10:15	16:12	8.7	6.6	10.1	4.1		C	F 9	6:30	12:15	17:43	24:10	9.4	7.1	9.2			S 9	6:36	12:50	18:32	24:10	10.5	6.9	9.2	
	W 10	5:58	11:15	17:08	8.4	7.1	9.7			S 10	0:28	7:32	13:40	19:12	4.1	9.8	6.5	9.2	E	M 10	0:49	7:28	13:59	20:00	4.4	10.8	5.0	9.2	
C	Th 11	0:15	7:20	12:50	4.3	8.6	7.3	9.4		S 11	1:40	8:29	14:45	20:36	4.3	10.4	5.5	9.5		Tu 11	1:55	8:22	15:04	21:15	4.7	11.3	4.0	9.5	
	F 12	1:29	8:32	14:20	4.3	9.1	7.0	9.4		M 12	2:48	9:15	15:35	21:42	4.2	11.0	4.4	10.2		W 12	3:00	9:15	16:00	22:20	4.9	11.9	2.7	10.0	
	S 13	2:38	9:25	15:25	4.1	9.7	6.1	10.0		E	Tu 13	3:44	9:58	16:24	22:38	4.1	11.7	5.1	10.9		Th 13	3:57	10:05	16:52	23:19	5.0	12.5	1.5	10.5
	S 14	3:34	10:06	16:14	3.8	10.6	5.0	10.7		W 14	4:32	10:40	17:10	23:30	4.0	12.4	1.9	11.4		F 14	4:50	10:56	17:40	24:10	5.0	13.1	0.5		
	M 15	4:21	10:42	16:57	3.3	11.5	5.8	11.4		●	Th 15	5:18	11:24	17:55	24:10	3.9	13.0	0.9		●	S 15	0:10	5:40	11:40	18:26	10.9	4.9	13.6	—0.2
E	Tu 16	5:10	11:24	17:35	3.0	12.0	2.8	12.1		P	F 16	0:17	6:00	12:05	18:38	11.7	4.0	18.4	0.2	●	S 16	1:00	6:28	12:28	19:12	11.2	4.8	13.7	—0.5
	W 17	5:50	12:00	18:12	2.8	12.6	1.9			S 17	1:05	6:46	12:45	19:24	11.8	4.1	13.6	—0.1		M 17	1:50	7:16	13:15	19:55	11.5	4.8	13.7	—0.4	
	Th 18	0:28	6:30	12:35	12.4	2.8	13.1	1.1		S 18	1:52	7:30	13:30	20:10	11.6	4.4	13.5	0.0		Tu 18	2:34	8:07	14:02	20:44	11.5	4.9	13.2	0.1	
	F 19	1:13	7:10	13:18	12.4	3.2	13.2	0.8		S	M 19	2:42	8:17	14:14	20:58	11.4	4.8	13.1	0.4		W 19	3:20	9:00	14:54	21:32	11.4	5.1	12.3	0.9
	S 20	2:00	7:50	13:51	12.0	3.7	13.1	0.7		Tu 20	3:35	9:08	15:03	21:50	11.0	5.3	12.4	1.1		Th 20	4:10	9:58	15:46	22:22	11.3	5.2	11.5	1.9	
S	S 21	2:48	8:34	14:33	11.5	4.3	12.8	1.1		W 21	4:30	10:10	16:00	22:46	10.7	5.8	11.4	2.0		F 21	5:00	11:00	16:47	23:12	11.1	6.4	10.5	3.0	
	M 22	3:41	9:21	15:20	10.7	5.1	12.2	1.7		D	Th 22	5:33	11:22	17:05	23:47	10.5	6.1	10.5	2.9	D	S 22	5:55	12:15	17:58	24:04	11.2	5.4	9.5	
	Tu 23	4:43	10:20	16:13	10.1	5.8	11.4	2.4		F 23	6:40	12:45	18:29	24:40	10.4	6.0	9.7		E	S 23	0:10	6:54	13:25	19:18	4.0	11.1	5.2	9.0	
	W 24	5:53	11:32	17:23	9.8	6.4	10.7			S 24	0:54	7:43	14:10	19:55	3.8	10.7	5.5	9.4		M 24	1:15	7:43	14:36	20:42	4.8	11.0	4.7	8.8	
	Th 25	0:18	7:15	13:00	8.0	9.7	6.5	10.2		E	S 25	2:02	8:42	15:14	21:15	4.3	11.0	4.7	9.5		Tu 25	2:20	8:44	15:43	21:55	5.5	11.1	4.1	8.8
F	F 26	1:38	8:28	14:32	3.5	10.1	6.0	9.9		M 26	3:10	9:32	16:08	22:16	4.6	11.2	4.0	9.8		W 26	3:20	9:35	16:32	22:56	6.0	11.3	3.4	9.0	
	S 27	2:46	9:27	15:40	3.7	10.6	5.1	10.2		Tu 27	4:05	10:14	16:54	23:10	4.9	11.6	3.2	9.9		Th 27	4:12	10:18	17:15	23:46	6.2	11.4	2.8	9.3	
	S 28	3:47	10:13	16:30	3.8	11.2	4.1	10.6		W 28	4:48	10:52	17:34	23:55	5.1	11.8	2.6	10.1	A	F 28	4:58	10:52	17:50	24:30	6.4	11.6	2.2		
	M 29	4:38	10:52	17:12	3.8	11.5	3.4	11.0		Th 29	5:24	11:25	18:08	24:40	5.4	12.0	2.1			S 29	0:26	5:38	11:28	18:22	9.6	6.4	11.7	1.8	
	Tu 30	5:20	11:27	17:50	3.9	11.9	2.8			O	F 30	0:35	6:00	11:55	18:40	10.0	5.6	12.1	1.8	N	S 30	1:00	6:14	12:02	18:54	9.8	6.3	12.0	1.5
W 31	0:05	5:55	11:59	11.1	4.1	12.1	2.3													M 31	1:33	6:48	12:34	19:23	10.1	6.3	11.9	1.4	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from a plane 2 feet below Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Sitka Standard, 135th meridian, W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.								
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				
	W. Mo.						W. Mo.						W. Mo.					
E	M	1	5:34	11:31	17:21	23:39	1	6:00	12:30	18:31	24:31	Th	1	4:20	10:45	16:51	22:34	
			7.8	8.2	6.7	1.6		7.7	2.9	5.3	...			8.2	1.9	6.2	2.6	
D	Tu	2	6:25	12:41	18:25	...	2	0:02	6:47	13:40	20:05	D	F	2	4:55	11:30	17:40	23:09
			7.7	8.2	6.0	...		8.1	7.4	2.8	4.9			7.8	2.2	5.5	3.8	
	W	3	0:26	7:19	13:55	19:47	3	0:53	7:42	15:01	21:47		S	3	5:39	12:30	18:52	23:57
			2.4	7.6	3.2	5.5		3.8	7.4	2.4	5.2			7.5	2.4	5.0	3.9	
A	Th	4	1:19	8:12	15:02	21:15	4	2:00	8:45	16:07	22:55		S	4	6:38	13:46	20:58	...
			3.0	7.5	2.8	5.8		4.2	7.6	1.7	5.5			7.3	2.4	5.0	...	
	F	5	2:16	9:00	16:06	22:26	5	3:20	9:45	16:55	23:41	N	M	5	1:11	7:54	15:10	22:20
			3.6	7.6	2.2	5.6		4.2	8.0	1.0	5.9			4.4	7.2	2.0	5.5	
	S	6	3:14	9:45	16:52	23:21	6	4:26	10:38	17:38	...		Tu	6	2:48	9:10	16:13	23:09
			3.8	7.9	1.4	5.9		4.1	8.4	0.2	...			4.4	7.5	1.3	6.1	
	S	7	4:07	10:25	17:29	...	7	0:19	5:19	11:26	18:12		W	7	4:08	10:15	17:03	23:45
			3.9	8.3	...	...		6.5	3.6	9.0	0.5			4.0	8.1	0.6	6.9	
	M	8	0:03	4:58	11:05	18:00	8	0:51	6:08	12:10	18:50		Th	8	5:04	11:10	17:45	...
			6.3	3.9	8.9	-0.1		7.2	3.0	9.5	-1.0			3.2	8.7	0.0	...	
N	Tu	9	0:39	5:36	11:45	18:34	9	1:21	6:45	12:52	19:25		F	9	0:18	5:50	11:59	18:23
			6.7	8.7	9.2	-0.7		7.7	2.4	9.8	-1.3			7.6	2.4	9.3	-0.4	
○	W	10	1:13	6:16	12:21	19:08	10	1:53	7:28	13:37	20:01	○	S	10	0:49	6:34	12:45	19:00
			7.0	3.3	9.5	-1.2		8.3	1.8	9.9	-1.2			8.4	1.4	9.7	-0.7	
	Th	11	1:45	6:55	13:00	19:45	11	2:25	8:10	14:19	20:40		S	11	1:21	7:17	13:28	19:41
			7.3	2.9	9.6	-1.4		8.7	1.8	9.7	-0.9			9.0	0.6	9.8	-0.7	
	F	12	2:16	7:37	13:41	20:20	12	3:00	8:55	15:02	21:20	P	M	12	1:55	7:59	14:10	20:20
			7.8	2.6	9.7	-1.4		9.0	1.1	9.2	-0.3			9.5	0.0	9.6	-0.3	
	S	13	2:51	8:21	14:23	21:00	13	3:37	9:45	15:50	22:00		Tu	13	2:32	8:42	14:55	20:57
			8.0	2.4	9.5	-1.0		9.2	1.0	8.4	0.5			9.7	-0.2	9.3	0.2	
	S	14	3:27	9:07	15:08	21:38	14	4:17	10:35	16:42	22:41		W	14	3:10	9:25	15:40	21:36
			8.2	2.3	9.0	-0.5		9.1	1.0	7.6	1.4			9.7	-0.2	8.5	0.9	
	M	15	4:08	9:58	15:58	22:22	15	5:01	11:30	17:45	23:29		Th	15	3:51	10:17	16:35	22:20
			8.3	2.2	8.3	0.2		8.9	1.3	6.6	2.2			9.6	0.9	7.5	1.8	
E	Tu	16	4:52	10:55	16:53	23:10	16	5:55	12:44	19:08	...		F	16	4:38	11:14	17:37	23:10
			8.5	2.2	7.4	1.1		8.7	1.5	5.8	...			9.2	0.5	6.6	2.6	
○	W	17	5:40	12:00	18:01	23:59	17	0:26	7:02	14:12	20:50	○	S	17	5:31	12:23	19:02	...
			8.4	2.1	6.7	1.9		3.0	8.5	1.4	5.4			8.8	1.0	5.9	...	
	Th	18	6:35	13:09	19:25	...	18	1:42	8:20	15:40	22:20	S	S	18	0:10	6:36	13:50	20:41
			8.4	2.0	6.0	...		3.6	8.5	1.0	5.9			3.4	8.3	1.3	5.9	
P	F	19	0:58	7:38	14:35	21:02	19	3:10	9:38	16:47	23:21		M	19	1:35	8:00	15:20	22:05
			2.2	8.5	1.6	5.8		3.7	8.7	0.4	6.6			3.8	8.0	1.2	6.3	
	S	20	2:08	8:45	15:55	22:25	20	4:31	10:43	17:40	...		Tu	20	3:17	9:27	16:28	23:04
			3.1	8.8	0.8	6.2		3.4	9.1	-0.2	...			3.8	8.0	0.9	6.9	
	S	21	3:22	9:50	16:57	23:28	21	0:10	5:30	11:40	18:22		W	21	4:38	10:37	17:18	23:47
			3.3	9.2	-0.1	6.5		7.2	2.9	9.5	-0.6			3.2	8.3	0.6	7.6	
S	M	22	4:29	10:49	17:49	...	22	0:50	6:19	12:25	19:00		Th	22	5:28	11:30	18:00	...
			3.3	9.7	-0.8	...		7.7	2.4	9.7	-0.7			2.5	8.7	0.4	...	
	Tu	23	0:20	5:28	11:41	18:34	23	1:25	7:01	13:06	19:33		F	23	0:22	6:12	12:18	18:33
			7.1	2.9	10.1	-1.4		8.3	1.9	9.7	-0.7			0.1	1.8	8.9	0.3	
●	W	24	1:04	6:20	12:29	19:15	24	1:58	7:40	13:48	20:04	●	S	24	0:54	6:50	13:00	19:06
			7.7	2.5	10.2	-1.6		8.6	1.5	9.5	-0.4			8.6	1.3	9.0	0.4	
	Th	25	1:45	7:06	13:12	19:55	25	2:26	8:16	14:24	20:36	E	S	25	1:21	7:23	13:35	19:37
			8.0	2.3	10.2	-1.5		8.7	1.3	9.0	0.0			8.9	0.8	8.8	0.6	
	F	26	2:22	7:50	13:57	20:30	26	2:54	8:53	15:00	21:08		M	26	1:50	7:55	14:08	20:04
			8.3	2.2	9.9	-1.2		8.8	1.3	8.4	0.6			8.9	0.7	8.6	0.9	
	S	27	3:00	8:32	14:38	21:08	27	3:22	9:30	15:37	21:36		Tu	27	2:16	8:28	14:40	20:30
			8.4	2.0	9.4	-0.7		8.7	1.5	7.8	1.3			8.9	0.7	8.1	1.3	
	S	28	3:31	9:16	15:19	21:37	28	3:50	10:07	16:10	22:03	A	W	28	2:42	8:55	15:10	20:57
			8.5	2.0	8.6	0.0		8.4	1.7	7.0	1.9			8.8	0.8	7.5	1.8	
E	M	29	4:04	10:00	15:59	22:15							Th	29	3:10	9:28	15:43	21:26
			8.4	2.2	7.7	0.8								8.6	0.9	7.0	2.3	
	Tu	30	4:40	10:48	16:42	22:50							F	30	3:38	10:05	16:20	21:58
			8.3	2.5	6.8	1.7								8.3	1.1	6.4	2.9	
	W	31	5:19	11:39	17:31	23:25							S	31	4:11	10:50	17:05	22:38
			8.0	2.7	6.1	2.4								8.0	1.4	6.8	3.4	

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JULY.				AUGUST.				SEPTEMBER.			
Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.
	W.	Mo.			W.	Mo.			W.	Mo.	
P	S	1	2:12 8:28 14:02 20:37 1.9 6.2 2.5 8.8	S	W	1	4:20 10:55 15:50 22:15 0.2 6.3 8.3 9.6	O	S	1	5:55 12:20 17:51 -0.4 7.8 2.3
	M	2	3:26 9:49 15:05 21:35 1.1 6.3 2.8 9.3		Th	2	5:19 11:51 16:55 23:12 -0.5 6.9 8.1 10.0		S	2	0:00 6:32 12:59 18:36 9.7 -0.6 8.8 1.7
	Tu	3	4:30 10:59 16:06 22:30 0.1 6.7 2.9 9.9		F	3	6:08 12:38 17:50 -1.1 7.4 2.7		M	3	0:46 7:09 13:33 19:18 9.8 -0.6 8.7 1.3
S	W	4	5:26 11:56 17:04 23:22 -0.8 6.9 2.8 10.3	O	S	4	0:05 6:51 13:20 18:42 10.2 -1.4 7.9 2.3	E	Tu	4	1:28 7:42 14:04 19:58 9.6 -0.4 8.9 0.9
	Th	5	6:17 12:49 17:59 -1.5 7.4 2.6		S	5	0:51 7:38 14:00 19:29 10.3 -1.4 8.3 2.0		W	5	2:08 8:20 14:35 20:37 9.2 0.0 9.0 0.9
	F	6	0:14 7:04 13:35 18:48 10.6 -1.9 7.7 2.5		M	6	1:39 8:11 14:39 20:15 10.0 -1.2 8.5 1.7		Th	6	2:49 8:51 15:05 21:15 8.6 0.7 8.8 1.1
E	S	7	1:01 7:50 14:20 19:38 10.6 -2.0 8.0 2.4	E	Tu	7	2:28 8:48 15:14 21:00 9.6 -0.7 8.6 1.2	A	F	7	3:25 9:28 15:35 21:55 7.9 1.4 8.6 1.4
	S	8	1:50 8:31 15:05 20:30 10.4 -1.7 8.1 2.3		W	8	3:08 9:24 15:49 21:47 8.9 -0.1 8.6 1.8		S	8	4:08 9:54 16:08 22:34 7.1 2.1 8.2 1.8
	M	9	2:36 9:16 15:49 21:20 9.9 -1.2 8.2 2.3	N	Th	9	3:50 10:04 16:28 22:35 8.0 0.8 8.5 2.1	C	S	9	4:46 10:25 16:45 23:20 6.8 2.8 7.8 2.1
A	Tu	10	3:25 9:59 16:30 22:14 9.1 -0.6 8.2 2.5		F	10	4:35 10:40 17:06 23:28 7.2 1.1 8.2 2.4		M	10	5:38 11:02 17:28 5.6 8.4 7.4
	W	11	4:15 10:40 17:16 23:12 8.2 0.4 8.1 2.7		S	11	5:25 11:18 17:49 6.3 2.4 7.9	N	Tu	11	0:20 6:54 13:51 18:27 2.4 5.1 3.9 7.1
	Th	12	5:08 11:25 18:04 7.2 1.3 8.1	A	S	12	0:20 6:26 13:57 18:35 2.6 5.6 3.1 7.6		W	12	1:32 8:47 13:07 19:42 2.5 6.1 4.4 7.0
C	F	13	0:16 6:10 12:12 18:55 2.8 6.4 2.1 7.9		M	13	1:25 7:50 12:46 19:32 2.7 5.1 8.7 7.4		Th	13	2:58 10:06 14:40 20:57 2.2 5.6 4.4 7.1
	S	14	1:26 7:19 13:00 19:48 2.8 5.8 2.8 7.8	N	Tu	14	2:48 9:29 13:50 20:38 2.4 5.2 4.1 7.4	P	F	14	3:55 10:51 15:55 22:06 1.7 6.2 4.0 7.6
	S	15	2:32 8:43 13:51 20:40 2.6 5.5 3.4 7.8		W	15	3:52 10:40 15:04 21:31 2.0 5.4 4.3 7.7		S	15	4:42 11:25 16:50 22:53 1.0 6.9 3.3 8.2
A	M	16	3:42 10:01 14:49 21:29 2.2 5.4 3.9 7.9		Th	16	4:48 11:28 16:10 22:25 1.3 5.9 4.1 8.1	E	S	16	5:22 11:55 17:38 23:40 0.5 7.6 2.4 8.7
	Tu	17	4:35 11:08 15:45 22:11 1.6 5.7 3.7 8.2	S	F	17	5:20 12:08 17:08 23:12 0.7 6.5 3.7 8.6		M	17	6:00 12:24 18:14 0.0 8.3 1.5
	W	18	5:17 11:51 16:35 22:50 1.0 6.0 4.0 8.3		S	18	5:56 12:35 17:46 23:55 0.0 7.1 3.2 9.0	C	Tu	18	0:24 6:38 12:56 18:53 9.2 -0.2 8.9 0.7
N	Th	19	5:50 12:30 17:20 23:31 0.4 6.4 3.8 8.8	S	S	19	6:31 13:08 18:28 -0.4 7.6 2.6		W	19	1:06 7:18 13:30 19:35 9.5 -0.2 9.4 0.0
	F	20	6:25 13:08 18:02 -0.2 6.7 3.5		M	20	0:37 7:05 13:34 19:10 9.3 -0.7 8.1 1.9		Th	20	1:48 7:52 14:06 20:17 9.4 0.0 9.6 -0.3
●	S	21	0:11 6:56 13:34 18:41 9.0 -0.7 7.1 3.2	E	Tu	21	1:18 7:41 14:04 19:50 9.5 -0.8 8.5 1.4	P	F	21	2:30 8:30 14:42 20:59 9.1 0.4 9.7 -0.4
	S	22	0:48 7:30 14:05 19:22 9.3 -0.9 7.5 2.9		W	22	2:01 8:17 14:37 20:34 9.4 -0.6 8.9 1.0		S	22	3:16 9:10 15:23 21:47 8.5 1.1 9.5 -0.2
	M	23	1:29 8:06 14:37 20:05 9.3 -1.0 7.8 2.5	N	Th	23	2:48 9:00 15:12 21:20 9.0 -0.1 9.2 0.9	D	S	23	4:08 9:51 16:07 22:45 7.6 1.8 9.3 0.2
D	Tu	24	2:10 8:42 15:10 20:50 9.2 -0.7 8.1 2.4		F	24	3:28 9:37 15:50 22:10 8.5 0.6 9.0 0.9		M	24	5:07 10:40 17:00 23:50 6.7 2.6 8.8 0.7
	W	25	2:58 9:20 15:46 21:37 8.9 -0.4 8.4 2.1		S	25	4:18 10:16 16:34 23:01 7.7 1.4 8.9 1.0	S	Tu	25	6:25 11:40 18:05 6.1 3.4 8.3
	Th	26	3:39 10:00 16:27 22:30 8.3 0.2 8.5 2.1	P	S	26	5:15 11:01 17:24 6.8 2.2 8.8		W	26	1:08 8:04 13:00 19:21 1.1 6.0 3.9 8.0
D	F	27	4:30 10:47 17:11 23:30 7.6 1.0 8.5 1.9		M	27	0:08 6:30 11:55 18:25 1.2 6.0 2.9 8.6		Th	27	2:35 9:30 14:39 20:50 1.2 6.4 3.8 8.0
	S	28	5:30 11:32 18:02 6.9 1.7 8.5	S	Tu	28	1:29 8:07 13:05 19:39 1.3 5.7 3.5 8.2	F	F	28	3:50 10:31 16:01 22:05 0.9 7.0 3.2 8.3
	S	29	0:30 6:43 12:24 18:59 1.9 6.2 2.4 8.6		W	29	2:55 9:41 14:30 20:57 1.0 5.9 3.7 8.6		S	29	4:48 11:18 17:00 23:05 0.7 7.6 2.4 8.6
P	M	30	1:50 8:11 13:28 20:05 1.6 5.8 3.1 8.8		Th	30	4:10 10:50 15:54 22:09 0.6 6.4 3.5 9.0	S	S	30	5:30 11:55 17:48 23:52 0.4 8.2 1.6 8.9
	Tu	31	3:10 9:42 14:38 21:11 1.0 5.9 3.3 9.1		F	31	5:07 11:40 16:58 23:09 0.0 7.1 2.9 9.4				

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OCTOBER.										NOVEMBER.										DECEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
B	M	1	6:09	12:27	18:27	0.3	8.8	1.0		A	Th	1	1:06	6:43	12:53	8.2	1.7	9.4	—0.1	A	S	1	1:27	6:39	12:48	7.1	2.8	9.4	—0.4
	Tu	2	0:38	6:45	13:00	9.1	0.4	9.1	0.4		F	2	1:38	7:10	13:20	7.9	1.9	9.4	—0.1		S	2	2:00	7:10	13:17	7.0	2.9	9.4	—0.4
C	W	3	1:16	7:17	13:29	9.0	0.6	9.1	0.8	N	S	3	2:11	7:38	13:47	7.5	2.2	9.2	0.0	N	M	3	2:32	7:41	13:46	6.9	2.9	9.2	—0.3
	Th	4	1:54	7:45	13:59	8.7	0.9	9.1	0.4		A	S	4	2:44	8:07	14:14	7.1	2.5	9.0	0.2	Tu	4	3:02	8:15	14:18	6.8	3.1	8.9	—0.1
A	F	5	2:27	8:12	14:25	8.1	1.4	9.0	0.6	N	M	5	3:17	8:39	14:43	6.7	2.9	8.6	0.4	C	W	5	3:36	8:55	14:53	6.7	3.4	8.5	0.2
	S	6	3:00	8:40	14:55	7.5	2.0	8.7	0.9		Tu	6	3:52	9:09	15:17	6.4	3.3	8.2	0.9		Th	6	4:17	9:42	15:35	6.7	3.6	7.9	0.7
N	S	7	3:35	9:11	15:23	6.7	2.5	8.3	1.2	C	W	7	4:37	9:57	15:55	6.1	3.8	7.6	1.3	E	F	7	5:03	10:37	16:35	6.8	3.8	7.3	1.1
	M	8	4:15	9:45	15:57	6.2	3.0	7.9	1.6		Th	8	5:31	10:50	16:47	5.9	4.2	7.1	1.7		S	8	5:57	11:43	17:30	6.9	3.8	6.7	
C	Tu	9	5:01	10:25	16:36	5.7	3.4	7.4	1.9	S	F	9	6:40	12:12	18:01	6.0	4.3	6.6		E	S	9	0:07	6:54	13:04	1.6	7.0	3.5	6.2
	W	10	6:03	11:16	17:30	5.3	4.2	7.0		S	S	10	0:48	7:52	13:44	2.0	6.5	8.9	6.4		M	10	1:10	7:53	14:30	2.1	7.6	2.8	6.3
E	Th	11	0:32	7:30	12:38	2.2	5.5	4.4	6.6	M	S	11	2:00	8:53	15:03	2.0	7.1	3.1	6.7	P	Tu	11	2:13	8:48	15:22	2.3	8.2	1.7	6.6
	F	12	1:47	8:55	14:17	2.1	6.0	4.2	6.8	E	M	12	3:09	9:40	16:00	2.0	7.8	2.0	7.4		W	12	3:14	9:42	16:23	2.4	9.0	0.5	7.0
P	S	13	2:58	9:51	15:35	1.9	6.6	3.5	7.2	W	Tu	13	4:02	10:23	16:45	1.7	8.6	0.9	7.9	S	Th	13	4:10	10:32	17:17	2.8	9.8	—0.5	7.4
	S	14	3:55	10:33	16:29	1.5	7.4	2.5	7.8	Th	W	14	4:50	11:05	17:32	1.6	9.5	—0.2	8.2		F	14	5:02	11:19	18:05	2.2	10.4	—1.4	
S	M	15	4:45	11:07	17:12	1.1	8.2	1.4	8.4	P	Th	15	5:33	11:48	18:17	1.4	10.2	—1.2		S	S	15	0:34	5:52	12:05	7.6	2.0	11.0	—2.1
	Tu	16	5:28	11:43	17:55	0.7	8.8	0.5		S	F	16	0:42	6:17	12:28	0.8	4.3	10.7	—1.7		S	16	1:22	6:40	12:51	7.7	2.0	11.2	—2.3
D	W	17	0:09	6:08	12:22	9.0	0.5	9.6	—0.4	S	S	17	1:28	6:58	13:09	8.8	1.4	11.0	—2.0	M	M	17	2:08	7:27	13:37	7.9	2.1	11.0	—2.1
	Th	18	0:53	6:45	12:58	9.2	0.5	10.1	—1.0	S	S	18	2:16	7:42	13:52	8.2	1.7	10.9	—1.9		Tu	18	2:56	8:15	14:24	7.8	2.2	10.6	—1.7
P	F	19	1:36	7:24	13:33	9.1	0.7	10.4	—1.3	M	M	19	3:04	8:27	14:37	7.8	2.0	10.4	—1.4	W	W	19	3:43	9:07	15:13	7.8	2.3	9.7	—1.0
	S	20	2:21	8:03	14:13	8.6	1.1	10.4	—1.3	Tu	Tu	20	3:56	9:17	15:26	7.4	2.5	9.7	—0.7		Th	20	4:32	10:02	16:07	7.8	2.7	8.8	—0.2
S	S	21	3:08	8:45	14:55	8.0	1.7	10.1	—0.8	D	W	21	4:52	10:14	16:22	7.2	3.0	8.8	0.0	D	F	21	5:22	11:07	17:07	7.7	3.0	7.8	0.5
	M	22	4:00	9:31	15:43	7.3	2.3	9.5	—0.2	Th	Th	22	5:58	11:24	17:27	7.1	3.4	7.8			S	22	6:20	12:20	18:18	7.7	3.1	6.8	
D	Tu	23	5:01	10:24	16:37	7.7	3.0	8.8	0.5	F	F	23	0:12	7:02	12:50	0.8	7.1	8.5	7.1	E	S	23	0:31	7:19	13:43	1.7	7.8	2.8	6.2
	W	24	6:15	11:32	17:45	6.4	3.5	8.0		S	S	24	1:20	8:13	14:23	1.5	7.4	3.0	6.8		M	24	1:33	8:20	15:00	2.4	8.0	2.5	6.0
E	Th	25	0:42	7:38	13:01	1.0	6.5	3.8	7.5	M	S	25	2:27	9:13	15:38	2.0	7.8	2.2	6.9	A	Tu	25	2:35	9:12	16:06	2.8	8.1	1.9	6.1
	F	26	2:03	8:56	14:41	1.3	7.0	3.5	7.4	Tu	M	26	3:30	10:03	16:31	2.2	8.2	1.7	7.1		W	26	3:32	10:06	16:58	3.2	8.4	1.2	6.2
S	S	27	3:17	9:55	15:57	1.4	7.5	2.6	7.6	W	Tu	27	4:23	10:40	17:17	2.3	8.6	1.0	7.2	S	Th	27	4:23	10:45	17:40	3.2	8.7	0.7	
	S	28	4:14	10:42	16:51	1.3	8.0	1.6	8.0	Th	W	28	5:04	11:20	17:56	2.4	9.0	0.4			F	28	0:04	5:07	11:20	6.4	3.3	8.9	0.2
E	M	29	5:00	11:20	17:33	1.3	8.4	1.1	8.3	F	Th	29	0:14	5:39	11:50	7.3	2.5	9.2	0.0	N	S	29	0:43	5:43	11:52	6.6	3.4	9.1	—0.2
	Tu	30	5:40	11:53	18:10	1.4	8.9	0.5		O	F	30	0:53	6:10	12:20	0.53	6.10	9.4	—0.2		S	30	1:17	6:16	12:26	6.7	3.8	9.3	—0.5
O	W	31	0:27	6:13	12:23	8.3	1.5	9.2	0.1											M	31	1:48	6:50	12:57	6.9	3.2	9.3	—0.6	

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JANUARY.					FEBRUARY.					MARCH.										
Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.					W.	Mo.					W.	Mo.						
E	M	1	7:30 -0.3	23:42 2.5		☾	Th	1	6:50 0.3	15:02 2.1		Th	1	5:37 0.7	13:03 2.0					
☾	Tu	2	7:45 -0.1	23:30 2.1		A	F	2	6:53 0.4	15:30 2.3		☾	F	2	5:39 0.8	13:30 2.2				
	W	3	7:55 0.1	16:45 2.1			S	3	6:45 0.4	16:05 2.5			S	3	5:35 0.8	14:00 2.4				
A	Th	4	7:50 0.2	16:52 2.3			S	4	6:36 0.4	16:27 2.7			S	4	5:30 0.8	14:29 2.6				
	F	5	7:45 0.3	17:13 2.6		N	M	5	6:10 0.3	17:02 2.9		N	M	5	5:26 0.6	15:02 2.7				
	S	6	7:40 0.3	17:41 2.8			Tu	6	5:35 0.1	17:32 3.1			Tu	6	3:30 0.4	15:42 2.8				
	S	7	6:56 0.2	18:03 2.9			W	7	5:22 -0.1	18:10 3.3			W	7	3:40 0.3	16:28 2.9				
	M	8	5:50 0.0	18:28 3.1		○	Th	8	5:18 -0.2	18:51 3.3			Th	8	4:04 0.2	17:18 2.9				
N	Tu	9	5:45 -0.2	18:55 3.4			F	9	5:15 -0.2	19:33 3.3			F	9	3:57 0.3	18:17 2.8				
○	W	10	6:00 -0.4	19:24 3.6			S	10	5:12 -0.1	20:17 3.2		○	S	10	3:30 0.4	19:12 2.6				
	Th	11	6:15 -0.5	19:55 3.6			S	11	5:08 0.0	21:04 3.0		E	S	11	3:18 0.5	20:10 2.4				
	F	12	6:27 -0.5	20:32 3.7		E	M	12	5:06 0.1	11:54 1.2	14:30 1.3	21:51 2.6	P	M	12	3:23 0.6	10:00 1.4	14:16 1.2	21:07 2.1	
	S	13	6:17 -0.5	21:10 3.6		P	Tu	13	5:20 0.1	12:16 1.4	16:02 1.3	22:42 2.2		Tu	13	3:39 0.6	10:15 1.8	15:50 1.0	22:08 1.7	
	S	14	6:11 -0.5	21:52 3.3			W	14	5:31 0.2	12:30 1.9	17:36 1.3	23:25 1.6		W	14	4:13 0.7	10:41 2.2	16:50 0.9	23:05 1.5	
	M	15	6:18 -0.4	22:34 2.9		☾	Th	15	5:58 0.3	13:08 2.4	19:00 1.2			Th	15	4:30 0.7	11:28 2.6	18:13 0.8		
E	Tu	16	6:35 -0.3	14:07 1.6	16:38 1.3	23:07 2.4		F	16	0:07 1.4	6:18 0.3	13:55 2.7	20:52 1.1		F	16	0:12 1.3	4:50 0.7	12:15 2.9	19:41 0.6
☾	W	17	6:45 -0.1	14:15 2.0	18:21 1.8	23:32 2.0		S	17	1:15 1.2	6:36 0.3	14:45 3.1		☾	S	17	1:02 1.1	5:13 0.6	13:02 3.2	21:27 0.4
	Th	18	7:06 -0.1	14:52 2.4	20:31 1.2	23:52 1.6	S	S	18	6:55 0.2	15:36 3.4			S	S	18	3:00 0.8	5:38 0.6	13:54 3.3	23:20 0.3
P	F	19	7:30 0.0	15:34 2.8			M	19	7:08 0.2	16:31 3.5				M	19	14:48 3.3				
	S	20	7:45 0.0	16:20 3.2			Tu	20	3:12 0.1	17:27 3.6				Tu	20	0:47 0.2	15:45 3.2			
	S	21	7:54 0.0	17:08 3.6			W	21	3:42 -0.1	18:22 3.5				W	21	1:41 0.1	16:46 3.0			
S	M	22	7:55 0.0	17:58 3.8		●	Th	22	4:17 -0.2	19:17 3.4				Th	22	2:26 0.2	17:50 2.8			
	Tu	23	4:32 -0.3	18:49 4.0			F	23	4:45 -0.1	20:07 3.2				F	23	2:51 0.3	18:51 2.5			
●	W	24	5:10 -0.5	19:38 4.0			S	24	5:08 0.0	20:55 2.9			●	S	24	3:20 0.5	19:49 2.2			
	Th	25	5:32 -0.6	20:22 3.9		E	S	25	5:20 0.2	21:39 2.5			E	S	25	3:31 0.7	9:55 1.4	14:23 1.3	20:43 1.9	
	F	26	6:00 -0.6	21:10 3.6			M	26	5:25 0.4	22:15 2.1				M	26	3:35 0.9	10:15 1.7	16:05 1.2	22:03 1.6	
	S	27	6:21 -0.4	21:49 3.3			Tu	27	5:25 0.5	12:31 1.6	16:59 1.3	23:16 1.7		Tu	27	3:55 1.0	10:32 1.8	17:01 1.1	22:58 1.5	
	S	28	6:33 -0.2	22:22 2.9		A	W	28	5:28 0.6	12:41 1.8	18:45 1.3	23:50 1.4	A	W	28	3:52 1.0	10:50 2.0	17:58 1.0	23:35 1.4	
E	M	29	6:41 -0.1	22:58 2.4										Th	29	3:45 1.1	11:14 2.2	19:05 0.9		
	Tu	30	6:46 0.1	23:26 1.9										F	30	0:20 1.3	3:46 1.0	11:36 2.4	20:04 0.8	
	W	31	6:47 0.2	15:00 1.8										S	31	12:00 2.6	20:57 0.6			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 165th meridian W.; ☉ is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☽, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.				MAY.				JUNE.			
Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.
	W.	Mo.			W.	Mo.			W.	Mo.	
N D E O P	S	1	12:25 21:57 2.8 0.5	D W Th F E S M P S C E A N	Tu	1	11:58 20:50 3.1 -0.1	F E S M P O S C E A N	F	1	12:15 20:30 2.4 -0.1
	M	2	12:53 22:40 2.8 0.5		W	2	12:35 21:15 2.9 0.0		S	2	4:39 9:36 12:38 21:01 1.9 0.9 1.9 0.1
	Tu	3	13:36 23:17 2.8 0.4		Th	3	13:16 21:43 2.6 0.1		S	3	5:05 21:24 2.3 0.2
	W	4	14:20 23:33 2.7 0.4		F	4	13:52 22:02 2.3 0.3		M	4	5:41 21:37 2.7 0.3
	Th	5	15:14 23:56 2.5 0.5		S	5	6:05 9:53 14:47 22:36 1.6 1.4 1.7 0.4		Tu	5	6:19 17:02 3.1 0.3
	F	6	16:20 2.5		S	6	6:20 12:30 16:40 23:05 2.0 1.3 1.4 0.6		W	6	7:03 17:12 3.5 -0.2
	S	7	0:25 7:48 10:17 17:41 0.6 1.4 1.3 2.0		M	7	6:50 14:12 19:18 23:24 2.3 1.1 1.2 0.7		Th	7	7:45 17:52 3.9 -0.5
	S	8	0:45 7:52 12:27 19:08 0.7 1.5 1.3 1.7		Tu	8	7:27 16:05 2.7 0.6		F	8	8:27 18:28 4.1 -0.8
	M	9	1:25 8:08 14:10 20:20 0.8 1.8 1.1 1.6		W	9	8:08 17:02 3.2 0.0		S	9	9:11 18:49 4.2 -0.9
	Tu	10	1:46 8:37 15:21 21:48 0.9 2.2 0.8 1.4		Th	10	8:49 17:51 3.6 -0.3		S	10	9:52 19:24 4.1 -0.8
	W	11	2:14 9:20 16:46 22:56 0.9 2.6 0.5 1.3		F	11	9:34 18:38 3.8 -0.5		M	11	10:35 19:42 3.9 -0.8
S C E A N	Th	12	2:32 10:02 18:00 23:50 0.9 3.1 0.2 1.1		S	12	10:15 19:21 3.9 -0.6		Tu	12	11:14 20:05 3.6 -0.6
	F	13	2:56 10:46 19:07 0.9 3.3 0.0		S	13	10:59 20:08 3.9 -0.6		W	13	11:51 20:24 3.0 -0.4
	S	14	11:32 20:10 3.5 -0.1		M	14	11:42 20:40 3.7 -0.5		Th	14	12:24 20:36 2.5 -0.1
	S	15	12:20 21:12 3.6 -0.1		Tu	15	12:25 21:14 3.4 -0.3		F	15	6:11 20:40 1.8 0.1
	M	16	13:09 22:09 3.4 -0.1		W	16	13:09 21:42 2.9 -0.1		S	16	5:41 20:48 2.2 0.2
	Tu	17	14:00 22:55 3.2 0.1		Th	17	14:04 22:04 2.3 0.1		S	17	5:50 20:55 2.4 0.3
	W	18	14:50 23:40 2.8 0.3		F	18	14:22 22:11 1.8 0.4		M	18	6:15 20:34 2.7 0.3
	Th	19	15:50 2.4		S	19	6:44 22:25 1.9 0.6		Tu	19	6:44 19:15 2.9 0.3
	F	20	0:17 17:06 0.5 1.9		S	20	6:56 22:32 2.3 0.7		W	20	7:11 18:52 3.0 -0.1
	S	21	0:40 8:02 12:18 18:31 0.7 1.6 1.4 1.5		M	21	7:29 16:48 2.5 0.7		Th	21	7:31 18:39 3.2 -0.3
	S	22	0:50 8:10 15:17 20:01 0.9 1.8 1.3 1.4		Tu	22	7:55 17:25 2.7 0.3		F	22	7:57 18:32 3.3 -0.5
M A N	M	23	1:15 8:40 16:26 21:16 1.1 2.1 1.0 1.3		W	23	8:15 18:08 2.8 0.0		S	23	8:19 18:58 3.5 -0.6
	Tu	24	1:08 9:04 17:28 22:15 1.1 2.3 0.6 1.2		Th	24	8:39 18:37 3.0 -0.2		S	24	8:51 19:11 3.6 -0.5
	W	25	0:57 9:27 18:17 1.1 2.5 0.4		F	25	8:54 19:07 3.2 -0.3		M	25	9:12 19:03 3.6 -0.6
	Th	26	9:52 18:58 2.7 0.2		S	26	9:15 19:22 3.4 -0.3		Tu	26	9:57 18:56 3.5 -0.6
	F	27	10:06 19:30 2.8 0.1		S	27	9:41 19:29 3.4 -0.5		W	27	10:11 19:01 3.2 -0.4
	S	28	10:29 19:57 3.0 0.0		M	28	10:12 19:33 3.4 -0.5		Th	28	10:55 19:13 2.9 -0.3
	S	29	10:52 20:15 3.1 0.0		Tu	29	10:44 19:45 3.3 -0.5		F	29	11:23 19:25 2.5 -0.2
	M	30	11:27 20:32 3.1 -0.1		W	30	11:14 19:58 3.1 -0.4		S	30	3:16 6:43 11:43 19:50 1.9 1.3 2.0 -0.1
					Th	31	11:46 20:13 2.8 -0.2				

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The time used is Cosmopolitan Standard, 165th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
P O	S 1	3:48	8:37	12:05	20:15	S	W 1	4:30	19:40			S	1	5:43	15:44		
		2.4	1.5	1.6	0.0			3.5	0.0					3.5	—0.1		
	M 2	4:28	20:28			Th	2	5:22	16:30			O	S 2	6:41	16:14		
		2.8	0.0					3.8	—0.2					3.3	0.0		
	Tu 3	5:06	20:35			F	3	6:15	16:38				M 3	7:40	16:35		
S O		3.2	0.0					3.9	—0.4					3.1	0.1		
	W 4	5:50	16:45			O	S 4	7:06	17:10			E	Tu 4	8:30	16:48	23:00	
		3.6	—0.1					3.9	—0.5					2.8	0.4	1.3	
	Th 5	6:36	17:10			S	5	8:00	17:37				W 5	1:35	9:20	16:55	23:25
		3.9	—0.5					3.9	—0.5					1.2	2.4	0.5	1.4
E C	F 6	7:22	17:34			M	6	8:45	17:57				Th 6	3:30	10:03	16:57	23:54
		4.1	—0.7					3.6	—0.3					1.3	2.1	0.6	1.8
	S 7	8:09	18:09			Tu	7	9:28	18:10				F 7	5:08	11:14	17:15	
		4.2	—0.8					3.3	—0.1					1.2	1.7	0.8	
	S 8	8:54	18:28			E	W 8	10:10	18:18				S 8	0:07	6:32	11:55	17:20
A		4.1	—0.8					2.9	0.0					2.0	1.2	1.4	0.8
	M 9	9:36	18:48			Th	9	10:50	18:29			A	S 9	0:35	7:10	12:35	17:20
		3.8	—0.6					2.4	0.2					2.1	1.2	1.3	0.8
	Tu 10	10:17	19:10			F	10	1:53	4:50	11:35	18:35	C	M 10	1:02	9:58	13:05	17:18
		3.5	—0.5					2.7	1.4	1.9	0.8			2.3	1.0	1.3	0.8
E C	W 11	10:54	19:24			C	S 11	2:18	6:30	11:50	18:36		Tu 11	1:34	12:16		
		3.1	—0.3					1.9	1.3	1.4	0.4			2.4	0.7		
	Th 12	11:35	19:36			A	S 12	2:34	18:47			N	W 12	2:00	13:40		
		2.5	—0.1					2.2	0.5					2.5	0.5		
	F 13	11:50	19:42				M 13	3:07	18:42				Th 13	2:30	14:25		
N		2.0	0.1					2.4	0.4					2.6	0.4		
	S 14	4:20	19:48			Tu	14	3:38	18:30				F 14	3:05	15:05		
		2.1	0.2					2.5	0.4					2.7	0.3		
	S 15	4:28	19:53			W	15	4:09	17:50				S 15	3:46	15:35		
		2.3	0.3					2.6	0.3					2.7	0.4		
A	M 16	4:54	19:45			N	Th 16	4:44	16:45				S 16	4:35	15:24		
		2.6	0.3					2.8	0.2					2.6	0.5		
	Tu 17	5:25	19:17			F	17	5:12	16:50				M 17	5:32	14:56		
		2.8	0.2					2.9	0.0					2.5	0.6		
	W 18	5:50	17:50			S	18	5:50	17:10			●	Tu 18	6:35	14:40	21:15	
N		2.9	0.1					3.0	—0.1					2.3	0.6	1.3	
	Th 19	6:17	17:30			●	S 19	6:25	17:28			E	W 19	0:10	7:40	14:44	21:35
		3.1	—0.2					3.1	—0.1					1.2	2.1	0.7	1.5
	F 20	6:45	17:47				M 20	7:10	17:10				Th 20	2:02	8:43	15:06	21:38
		3.2	—0.3					3.1	0.1					1.2	1.8	0.7	1.9
●	S 21	7:10	18:05			Tu	21	7:58	16:50			P	F 21	3:32	9:45	15:38	22:10
		3.4	—0.4					3.0	0.2					0.9	1.7	0.8	2.3
	S 22	7:40	18:24			E	W 22	8:40	16:45	23:25			S 22	4:25	11:00	15:55	22:50
		3.5	—0.4					2.8	0.3	1.3				0.7	1.4	0.8	2.7
	M 23	8:14	18:12			Th	23	2:00	9:32	16:50	23:44		S 23	5:49	12:00	16:18	23:35
E		3.5	—0.3					1.2	2.4	0.3	1.4			0.5	1.3	0.9	3.0
	Tu 24	8:50	18:00			F	24	3:42	10:30	17:05	23:54	D	M 24	7:09	13:00	16:40	
		3.4	—0.3					1.3	2.0	0.4	2.0			0.4	1.0	0.7	
	W 25	9:32	18:02			S	25	5:10	11:12	17:32		S	Tu 25	0:20	8:32	14:40	17:10
		3.1	—0.2					1.2	1.6	0.5				3.3	0.2	0.7	0.6
D	Th 26	10:15	18:14			D	S 26	0:25	6:15	11:57	17:55		W 26	1:10	10:00		
		2.8	—0.2			P		2.3	1.1	1.3	0.4			3.4	0.1		
	F 27	1:46	4:05	10:48	18:25		M 27	1:10	7:57	13:35	18:10		Th 27	2:00	11:20		
		1.4	1.3	2.4	0.0			2.7	0.9	1.2	0.3			3.4	0.0		
	S 28	1:40	5:40	11:17	18:44	Tu	28	2:00	10:47	14:02	18:34		F 28	3:00	12:20		
P		1.8	1.3	1.9	0.0			3.1	0.6	0.7	0.4			3.3	0.1		
	S 29	2:15	7:37	11:40	19:08	S	W 29	2:55	13:28				S 29	4:00	13:14		
		2.3	1.3	1.4	0.1			3.3	0.3					3.0	0.2		
	M 30	2:56	9:20	10:40	19:24	Th	30	3:47	14:26				S 30	5:00	13:55		
		2.7	1.3	1.4	0.1			3.5	0.1					2.7	0.4		
	Tu 31	3:40	19:38			F	31	4:45	15:07								
		3.1	0.1					3.5	—0.1								

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The time used is Cosmopolitan Standard, 165th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.							
Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.		
	W.	Mo.					W.	Mo.					W.	Mo.			
P	M	1	6:14 2.4	14:24 0.6	20:42 1.4	Th	1	4:18 0.8	8:50 1.2	12:38 1.0	20:40 2.5	A	S	1	5:48 0.0	20:24 3.2	
	Tu	2	0:08 1.3	7:20 2.1	14:40 0.7	F	2	5:20 0.4	21:09 2.7			S	2	6:24 -0.3	20:50 3.3		
	W	3	2:28 1.2	8:31 1.8	14:50 0.9	S	3	6:10 0.2	21:38 2.8			N	M	3	6:57 -0.5	21:08 3.4	
	Th	4	3:55 1.0	9:45 1.6	15:24 1.0	A	S	4	6:52 0.0	21:52 3.0		Tu	4	7:17 -0.4	21:30 3.4		
	F	5	4:54 0.9	10:50 1.4	15:19 1.1	M	5	7:30 -0.1	22:12 3.1		W	5	7:30 -0.4	21:55 3.4			
A	S	6	6:05 0.7	11:35 1.3	15:20 1.1	N	Tu	6	7:56 0.1	22:33 3.1		Th	6	7:30 -0.5	22:25 3.3		
	S	7	7:10 0.6	12:30 1.2	15:20 0.9	W	7	8:15 -0.1	23:00 3.1		F	7	7:35 -0.4	22:47 3.1			
	M	8	8:05 0.5	13:25 1.1	15:30 0.9	C	Th	8	8:20 -0.2	23:30 3.0		C	S	8	7:47 -0.3	23:15 2.8	
	Tu	9	8:54 0.4	23:58 2.8		F	9	8:40 -0.1	23:57 2.9		S	9	8:00 -0.2	23:35 2.4			
	W	10	9:38 0.3			S	10	8:55 0.0			E	M	10	8:10 -0.1	16:40 1.8		
N	Th	11	0:28 2.8	9:55 0.3		S	11	0:26 2.6	9:12 0.1		Tu	11	8:35 0.0	16:50 2.2			
	F	12	1:00 2.7	10:30 0.3		M	12	0:58 2.2	9:30 0.2	18:04 1.7	20:15 1.6	W	12	8:58 0.2	17:20 2.7		
	S	13	1:40 2.6	10:50 0.4		E	Tu	13	1:30 1.7	10:00 0.4	18:05 2.1	Th	13	9:10 0.3	17:55 3.1		
	S	14	2:25 2.4	11:14 0.4		W	14	10:25 0.6	18:27 2.4		F	14	9:20 0.2	18:33 3.5			
	M	15	3:22 2.1	11:37 0.6	19:52 1.5	●	Th	15	10:46 0.6	19:02 2.8		P	S	15	5:05 -0.1	19:17 3.9	
E	Tu	16	4:40 1.8	11:58 0.7	19:26 1.7	P	F	16	4:36 0.5	19:40 3.3		S	16	5:40 -0.5	20:00 4.2		
	W	17	0:10 1.3	6:27 1.4	12:37 0.9	S	17	4:58 0.1	20:20 3.7		M	17	6:10 -0.8	20:44 4.3			
	Th	18	1:42 1.2	7:55 1.3	12:58 0.9	S	18	5:40 -0.3	21:04 4.0		Tu	18	6:25 -0.9	21:26 4.2			
	F	19	3:10 0.7	9:28 1.3	13:28 0.8	S	M	19	6:20 -0.6	21:45 4.1		W	19	6:50 -0.9	22:17 4.1		
	S	20	4:36 0.3	10:35 1.1	13:50 0.7	Tu	20	7:00 -0.7	22:27 4.1		Th	20	7:14 -0.8	22:48 3.7			
S	S	21	5:40 0.0	11:50 0.8	14:15 0.6	W	21	7:38 -0.7	23:08 3.9		F	21	7:40 -0.7	23:30 3.2			
	M	22	6:40 -0.3	22:55 3.7		D	Th	22	8:12 -0.7	23:50 3.6		D	S	22	8:05 -0.4		
	Tu	23	7:37 -0.4	23:40 3.7		F	23	8:42 -0.5			E	S	23	0:08 2.6	8:20 -0.2		
	W	24	8:30 -0.4			S	24	0:36 3.1	9:11 -0.3		M	24	0:06 2.0	8:30 0.0	17:15 2.1		
	Th	25	0:27 3.6	9:20 -0.3		E	S	25	1:20 2.5	9:32 0.0	18:00 1.7	20:00 1.6	Tu	25	8:35 0.1	17:24 2.5	
P	F	26	1:15 3.4	10:05 -0.1		M	26	1:35 1.9	9:50 0.8	18:15 2.1		W	26	8:50 0.2	17:53 2.8		
	S	27	2:07 3.0	10:55 0.1		Tu	27	10:00 0.4	18:31 2.4		Th	27	8:40 0.3	18:25 3.0			
	S	28	3:06 2.5	11:24 0.3	19:00 1.3	W	28	10:20 0.6	19:04 2.7		A	F	28	5:48 0.2	18:55 3.1		
	M	29	4:27 2.0	11:50 0.5	19:24 1.8	Th	29	7:50 0.6	19:35 2.9		S	29	5:24 0.0	19:20 3.2			
	Tu	30	0:50 1.3	6:00 1.5	12:10 0.8	O	F	30	5:10 0.3	20:00 3.0		N	S	30	5:55 -0.2	19:53 3.3	
O	W	31	3:07 1.2	7:28 1.3	12:38 0.9							M	31	6:16 -0.4	20:11 3.4		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.3 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 165th meridian W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	M 1	2:15 0.5	9:02 4.4	15:04 2.2	20:25 3.6	☾	Th 1	2:50 1.8	8:58 4.2	15:52 1.7	21:15 3.0	A	Th 1	1:50 1.4	7:50 4.5	14:20 1.1	20:10 3.7
E	Tu 2	3:02 1.1	9:38 4.4	16:04 2.2	21:20 3.1	A	F 2	3:18 2.2	9:25 4.0	16:55 1.8	22:30 2.8	F	2	2:14 1.8	8:12 4.3	15:00 1.3	20:48 3.3
☾	W 3	3:40 1.8	10:15 8.9	17:05 2.1	22:58 2.8		S 3	4:00 2.6	10:07 3.8	18:17 1.6		☾	S 3	2:43 2.2	8:36 4.1	15:50 1.5	21:44 2.9
	Th 4	4:30 2.3	10:50 3.8	18:15 1.9			S 4	2:53 2.9	5:40 2.8	11:18 3.7	19:36 1.3		S 4	3:20 2.6	9:10 3.9	17:00 1.6	
A	F 5	1:20 2.9	5:35 2.6	11:46 8.8	19:30 1.7		M 5	3:50 3.3	7:35 2.9	13:03 3.7	20:36 0.9		M 5	0:45 2.9	4:55 2.8	10:00 3.6	18:30 1.5
	S 6	3:10 3.1	7:00 2.8	13:00 3.8	20:25 1.1	N	Tu 6	4:18 3.7	8:58 2.8	14:24 3.9	21:24 0.4	N	Tu 6	3:18 3.3	7:12 3.0	12:10 3.4	19:56 1.2
	S 7	3:55 3.5	8:17 2.8	13:57 3.9	21:08 0.6		W 7	4:45 4.1	9:48 2.7	15:20 4.2	22:06 0.0		W 7	3:50 3.7	8:44 2.8	14:07 3.8	20:55 0.7
	M 8	4:30 3.8	9:16 2.8	14:50 4.1	21:48 0.2		Th 8	5:10 4.5	10:30 2.4	16:05 4.5	22:41 -0.4		Th 8	4:14 4.2	9:34 2.5	15:12 4.1	21:42 0.3
	Tu 9	4:58 4.2	10:00 2.7	15:36 4.3	22:24 -0.2	○	F 9	5:35 4.7	11:08 2.0	16:41 4.8	23:20 -0.6		F 9	4:40 4.5	10:12 2.0	16:00 4.5	22:25 0.0
N	W 10	5:26 4.4	10:41 2.5	16:15 4.5	22:58 -0.5		S 10	6:04 5.0	11:45 1.7	17:26 3.0	23:57 -0.6		S 10	5:05 4.8	10:50 1.5	16:52 4.9	23:02 -0.2
C	Th 11	5:55 4.7	11:20 2.3	16:50 4.7	23:34 -0.7		S 11	6:33 5.0	12:22 1.4	18:06 5.1		○	S 11	5:30 5.0	11:24 1.0	17:21 5.2	23:40 -0.2
	F 12	6:26 4.7	11:58 2.1	17:27 4.8			M 12	0:35 -0.4	7:02 5.0	13:00 1.2	18:48 5.0	E	M 12	6:00 5.1	12:00 0.7	18:01 5.3	
	S 13	0:10 -0.7	6:59 4.9	12:36 2.0	18:06 4.8	E	Tu 13	1:12 0.0	7:32 5.0	13:40 1.0	19:32 4.7	P	Tu 13	0:20 0.0	6:30 5.1	12:37 0.5	18:40 5.2
	S 14	0:49 -0.6	7:30 4.9	13:18 1.9	18:47 4.6	P	W 14	1:52 0.5	8:05 4.8	14:22 1.0	20:15 4.3		W 14	1:00 0.4	7:02 5.0	13:16 0.4	19:25 5.0
	M 15	1:28 -0.2	8:06 4.8	14:02 1.8	19:34 4.4		Th 15	2:34 1.2	8:38 4.5	15:04 1.0	21:05 3.9		Th 15	1:38 0.9	7:34 4.8	13:53 0.3	20:08 4.5
E	Tu 16	2:12 0.3	8:40 4.6	14:52 1.8	20:24 4.0	☾	F 16	3:18 1.8	9:12 4.2	16:00 1.1	22:20 3.3	☾	F 16	2:16 1.6	8:05 4.5	14:38 0.5	21:04 4.0
	W 17	2:58 0.9	9:19 4.4	15:44 1.7	21:24 3.7		S 17	4:15 2.5	9:55 4.0	17:18 1.2		☾	S 17	3:00 2.2	8:38 4.2	15:31 0.8	22:19 3.5
C	Th 18	3:45 1.6	10:00 4.2	16:42 1.5	22:38 3.8		S 18	0:55 3.1	5:34 2.9	10:57 8.8	18:50 1.0	S	S 18	3:53 2.7	9:14 3.9	16:46 1.1	
	F 19	4:45 2.2	10:45 4.0	17:58 1.3		S	M 19	3:04 3.4	7:20 3.0	12:38 3.8	20:12 0.7		M 19	0:42 3.3	5:15 2.9	10:14 3.6	18:19 1.2
P	S 20	1:00 3.3	6:08 2.7	11:55 3.9	19:20 0.9		Tu 20	4:00 3.8	8:50 2.8	14:15 4.0	21:15 0.3		Tu 20	2:44 3.6	7:13 3.0	12:26 3.6	19:51 1.0
	S 21	2:55 3.6	7:37 2.8	13:12 4.0	20:30 0.4		W 21	4:38 4.2	9:46 2.8	15:22 4.3	22:04 -0.1		W 21	3:38 3.9	8:51 2.8	14:25 3.8	20:58 0.8
	M 22	4:00 4.0	8:50 2.8	14:22 4.2	21:25 -0.1		Th 22	5:10 4.4	10:25 2.4	16:10 4.5	22:42 -0.2		Th 22	4:12 4.2	9:40 2.4	15:25 4.0	21:45 0.6
S	Tu 23	4:44 4.4	9:48 2.8	15:18 4.5	22:13 -0.5	●	F 23	5:31 4.6	11:00 1.9	16:50 4.8	23:15 -0.2		F 23	4:37 4.4	10:15 1.9	16:12 4.4	22:24 0.5
	W 24	5:21 4.6	10:32 2.5	16:08 4.8	22:54 -0.7		S 24	5:55 4.8	11:34 1.6	17:30 4.9	23:50 -0.1		S 24	5:00 4.5	10:45 1.5	16:50 4.6	23:00 0.5
●	Th 25	5:54 4.7	11:12 2.3	16:52 4.9	23:32 -0.7		S 25	6:18 4.8	12:07 1.3	18:04 4.8		●	S 25	5:20 4.6	11:16 1.0	17:24 4.7	23:34 0.6
	F 26	6:24 4.8	11:50 2.0	17:34 4.9		E	M 26	0:20 0.2	6:40 4.8	12:42 1.1	18:40 4.6		M 26	5:40 4.8	11:48 0.8	17:54 4.8	
	S 27	0:07 -0.6	6:51 4.8	12:28 1.8	18:11 4.8		Tu 27	0:58 0.6	7:02 4.8	13:18 1.0	19:12 4.4		Tu 27	0:00 0.8	6:02 4.7	12:16 0.6	18:24 4.7
	S 28	0:40 -0.3	7:19 4.8	13:06 1.7	18:50 4.5		W 28	1:21 1.0	7:24 4.6	13:45 1.0	19:42 4.1		W 28	0:26 1.0	6:24 4.7	12:41 0.5	18:51 4.5
	M 29	1:14 0.1	7:45 4.7	13:45 1.6	19:28 4.2							A	Th 29	0:54 1.3	6:46 4.6	13:12 0.5	19:21 4.2
E	Tu 30	1:52 0.6	8:10 4.6	14:27 1.6	20:04 3.8								F 30	1:24 1.7	7:10 4.5	13:45 0.6	19:56 3.9
	W 31	2:24 1.2	8:36 4.4	15:08 1.7	20:44 3.4								S 31	1:55 2.0	7:35 4.4	14:23 0.8	20:35 3.6

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 135th meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
N	S	1	2:30	8:02	15:06	21:34	2.4	4.1	1.0	3.4	D	Tu	1	3:18	8:13	15:33	22:42	2.8	3.8	1.0	3.5	E	F	1	5:44	11:00	17:37	23:53	2.4	3.2	1.6	4.5
	M	2	3:16	8:38	16:08	23:10	2.7	3.8	1.3	3.1		W	2	4:42	9:20	16:47	23:53	2.8	3.5	1.3	3.1		S	2	0:20	6:52	12:57	18:53	4.0	1.9	3.4	1.8
	Tu	3	4:44	9:33	17:32	23:53	2.8	3.6	1.5	2.8		Th	3	0:22	6:22	11:22	18:16	3.6	2.8	3.3	1.5		S	3	1:13	7:47	14:14	20:01	4.0	1.3	3.7	1.9
	W	4	1:52	6:50	11:36	19:02	3.3	2.8	3.3	1.4		F	4	1:33	7:40	13:29	19:40	1:33	7:40	13:29	19:40		M	4	2:04	8:38	15:20	20:59	4.2	0.7	4.2	1.9
	Th	5	2:48	8:18	13:50	20:16	3.7	2.7	3.5	1.1		S	5	2:23	8:33	14:40	20:43	4.0	1.6	3.9	1.3		Tu	5	2:52	9:25	16:15	21:50	4.5	0.1	4.6	1.9
E	F	6	3:22	9:07	14:59	21:17	4.1	2.1	4.0	0.8	E	S	6	3:01	9:17	15:32	21:33	4.2	1.1	4.4	1.1	P	W	6	3:36	10:10	17:02	22:37	4.7	0.4	4.8	2.0
	S	7	3:54	9:48	15:47	22:02	4.4	1.5	4.5	0.5		M	7	3:38	9:58	16:19	22:18	4.5	0.5	4.9	1.1		Th	7	4:16	10:54	17:48	23:19	4.9	0.8	5.0	2.0
	S	8	4:24	10:26	16:30	22:45	4.7	0.9	5.0	0.4		Tu	8	4:17	10:30	17:05	23:00	4.8	0.1	5.2	1.2		F	8	4:54	11:37	18:32	23:53	5.0	1.0	5.0	2.0
	M	9	4:54	11:02	17:12	23:25	4.9	0.4	5.2	0.4		W	9	4:49	11:10	17:50	23:40	4.9	0.5	5.3	1.4		S	9	0:03	5:33	12:19	19:16	5.0	0.0	5.0	2.0
	Tu	10	5:28	11:37	17:52	24:00	5.0	0.0	5.4	0.4		Th	10	5:22	11:50	18:33	24:00	5.0	0.0	5.4	0.4		S	10	0:43	6:12	13:02	20:01	5.0	0.0	5.0	2.0
P	W	11	0:02	5:58	12:15	18:38	0.6	5.0	0.3	5.3	S	F	11	0:18	5:55	12:32	19:20	1.7	5.0	0.8	6.0	M	11	1:28	6:58	13:45	20:45	2.3	4.6	0.3	4.4	
	Th	12	0:40	6:28	12:51	19:20	1.0	4.9	0.4	5.0		S	12	0:59	6:30	13:15	20:08	2.0	4.8	0.6	4.6		Tu	12	2:22	7:37	14:30	21:33	2.4	4.2	0.3	4.2
	F	13	1:19	7:00	13:32	20:10	1.5	4.8	0.2	4.6		S	13	1:41	7:06	14:01	21:02	2.3	4.5	0.2	4.3		W	13	3:20	8:33	15:17	22:23	2.5	3.7	0.9	4.1
	S	14	2:00	7:32	14:20	21:06	2.0	4.6	0.1	4.1		M	14	2:38	7:46	14:51	22:03	2.7	4.2	0.3	4.0		Th	14	4:27	9:46	16:22	23:17	2.4	3.2	1.5	3.9
	S	15	2:48	8:05	15:12	22:20	2.5	4.2	0.5	3.7		Tu	15	3:38	8:36	15:48	23:18	3.8	3.8	0.9	3.7		F	15	5:45	11:45	17:23	23:53	2.2	3.0	2.0	2.0
C	M	16	3:45	8:48	16:17	23:00	2.8	3.8	1.0	3.4	W	16	4:58	9:58	16:53	23:53	2.8	3.8	1.4	3.4	S	16	0:08	6:32	13:45	18:32	3.7	2.0	3.1	2.4		
	Tu	17	0:10	5:10	9:55	17:40	3.5	2.8	3.5	1.3		Th	17	0:36	6:35	12:27	18:23	3.7	2.5	3.1	1.8	S	17	1:00	7:52	15:02	19:37	3.8	1.5	3.8	2.7	
	W	18	1:50	7:08	12:32	19:12	3.7	2.8	3.2	1.4		F	18	1:35	7:53	14:14	19:43	3.8	2.1	3.8	1.9	M	18	1:44	8:40	15:53	20:33	4.0	1.1	3.6	2.8	
	Th	19	2:46	8:30	14:22	20:25	3.9	2.5	3.5	1.4		S	19	2:23	8:40	15:15	20:38	3.8	1.7	3.7	2.0	Tu	19	2:23	9:20	16:32	21:20	4.1	0.7	3.8	2.7	
	F	20	3:24	9:18	15:25	21:24	4.0	1.9	3.8	1.4	E	S	20	2:57	9:14	15:58	21:22	3.9	1.2	4.0	2.1	A	W	20	3:00	9:55	17:08	22:03	4.2	0.3	4.0	2.6
E	S	21	3:52	9:54	16:08	22:00	4.1	1.4	4.2	1.3		M	21	3:22	9:48	16:35	21:57	4.1	0.7	4.2	2.1		Th	21	3:37	10:28	17:32	22:40	4.4	0.0	4.2	2.5
	S	22	4:15	10:24	16:42	22:32	4.3	1.1	4.5	1.3		Tu	22	3:47	10:19	17:06	22:30	4.3	0.4	4.3	2.1		F	22	4:12	11:02	18:00	23:16	4.5	0.2	4.4	2.5
	M	23	4:40	10:50	17:14	23:02	4.4	0.7	4.6	1.3		W	23	4:14	10:50	17:35	23:03	4.4	0.1	4.3	2.1		S	23	4:43	11:34	18:31	23:53	4.5	0.4	4.5	2.5
	Tu	24	5:00	11:14	17:44	23:30	4.5	0.4	4.6	1.5		Th	24	4:41	11:20	18:06	23:37	4.6	0.1	4.4	2.2		S	24	5:17	12:10	19:03	23:53	4.6	0.4	4.6	2.5
A	W	25	5:22	11:42	18:12	24:00	4.6	0.2	4.6	1.5	N	F	25	5:06	11:51	18:37	24:00	4.6	0.2	4.4	2.2	M	25	0:35	5:53	12:46	19:38	2.4	4.6	0.4	4.6	
	Th	26	0:00	5:42	12:12	18:40	1.6	4.7	0.1	4.5		S	26	0:10	5:33	12:25	19:11	2.3	4.6	0.3	4.4		Tu	26	1:15	6:32	13:25	20:15	2.4	4.4	0.1	4.5
	F	27	0:30	6:05	12:45	19:15	1.8	4.6	0.1	4.3		S	27	0:47	6:08	13:00	19:47	2.4	4.5	0.1	4.3		W	27	2:02	7:18	14:10	20:55	2.4	4.2	0.2	4.4
	S	28	1:02	6:30	13:20	19:50	2.1	4.5	0.2	4.1		M	28	1:30	6:38	13:38	20:28	2.5	4.3	0.1	4.2		Th	28	2:54	8:07	14:58	21:36	2.3	3.9	0.7	4.3
	S	29	1:38	7:00	13:56	20:34	2.4	4.3	0.4	3.9	D	Tu	29	2:18	7:18	14:23	21:18	2.7	4.1	0.4	4.1		F	29	3:57	9:10	15:52	22:22	2.2	3.6	1.3	4.2
N	M	30	2:20	7:31	14:41	21:28	2.7	4.1	0.7	3.7		W	30	3:14	8:08	15:17	22:11	2.7	3.8	0.7	4.0	E	S	30	4:57	10:34	16:53	23:09	1.9	3.3	1.8	4.1
											D	Th	31	4:26	9:16	16:22	23:14	2.7	3.5	1.2	3.9											

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●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.				
Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.		
	W. Mo.					W. Mo.					W. Mo.			
P C S	S 1	5:58 1.5	12:07 3.3	18:05 2.2	P	W 1	0:28 4.1	7:52 0.6	15:30 3.9	20:12 2.8	S 1	2:52 4.2	9:36 0.1	16:42 4.4
	M 2	0:07 4.1	7:08 1.1	14:02 3.5	S	Th 2	1:44 4.2	8:55 0.0	16:20 4.2	21:17 2.8	S 2	3:46 4.5	10:20 -0.1	17:08 4.6
	Tu 3	1:11 4.2	8:12 0.5	15:20 4.0	F	3	2:48 4.5	9:47 -0.4	17:00 4.4	22:08 2.6	○ M 3	4:30 4.8	10:58 -0.2	17:32 4.8
	W 4	2:12 4.4	9:08 -0.1	16:17 4.3	○ S	4	3:44 4.7	10:32 -0.7	17:33 4.6	22:52 2.3	Tu 4	5:14 4.9	11:30 0.0	17:56 4.8
	Th 5	3:05 4.6	9:58 -0.5	17:04 4.6	S	5	4:38 4.9	11:13 -0.7	18:05 4.7	23:32 2.0	E W 5	5:50 4.9	12:05 0.2	18:20 4.8
	F 6	3:53 4.8	10:42 -0.8	17:47 4.8	M	6	5:15 4.9	11:52 -0.6	18:34 4.7	24:08 2.0	Th 6	6:24 0.9	12:40 4.7	18:46 0.6
	S 7	4:38 5.0	11:26 -1.0	18:25 4.8	Tu 7	7	6:01 1.7	12:27 4.9	19:08 -0.3	24:44 4.8	F 7	7:00 0.8	13:07 4.5	19:09 1.0
	S 8	5:22 5.0	12:08 -0.9	19:02 4.7	W 8	8	6:51 1.5	13:01 4.7	19:30 0.1	25:18 4.7	S 8	7:30 0.8	13:35 4.2	19:31 1.5
	M 9	6:30 2.1	6:04 4.9	12:47 -0.6	E Th 9	9	7:19 1.4	13:40 4.3	19:58 0.6	25:58 4.6	S 9	8:00 1.0	14:03 3.8	19:55 1.9
	Tu 10	1:13 2.0	6:47 4.6	13:27 -0.2	F 10	10	8:00 1.4	14:13 4.0	20:25 1.2	26:34 4.4	A M 10	8:40 1.2	14:35 3.4	20:20 2.3
	W 11	2:00 2.0	7:32 4.2	14:04 0.4	S 11	11	8:38 1.5	14:44 3.5	20:48 1.8	27:02 4.2	○ Tu 11	9:33 1.4	15:10 3.1	20:49 2.7
	Th 12	2:50 2.0	8:21 3.8	14:52 1.0	○ S 12	12	9:12 1.6	15:12 3.1	21:12 2.2	27:30 4.0	W 12	10:20 1.6	15:35 2.9	21:34 2.8
E C A	F 13	3:44 2.0	9:17 3.3	15:33 1.6	A M 13	13	9:35 1.6	15:30 2.9	21:50 2.6	28:00 3.8	N Th 13	10:50 1.6	15:55 3.3	23:40 2.9
	S 14	4:40 1.9	10:36 3.0	16:14 2.1	Tu 14	14	10:30 1.6	16:10 2.9	22:48 2.8	28:30 3.7	F 14	11:30 1.4	16:20 3.7	23:50 2.8
	S 15	5:43 1.8	12:17 2.9	17:07 2.6	W 15	15	11:30 1.4	16:40 3.1	23:10 2.9	29:00 3.7	S 15	12:10 8.5	16:45 1.0	24:10 4.1
	M 16	6:59 1.5	14:52 3.0	18:23 2.8	N Th 16	16	12:10 8.7	17:10 1.0	23:40 3.6	29:30 3.8	S 16	12:45 3.9	16:55 0.6	24:20 4.4
	Tu 17	8:02 3.8	15:50 3.2	19:45 3.3	F 17	17	13:00 8.8	17:40 0.6	24:10 3.9	30:00 2.7	M 17	13:30 4.4	17:10 0.2	24:40 4.7
	W 18	1:23 3.9	8:50 0.7	16:26 3.6	S 18	18	13:50 4.1	18:20 0.2	24:40 4.2	30:30 2.5	● Tu 18	14:20 4.8	17:20 0.1	25:00 4.9
	Th 19	2:22 4.1	9:32 0.4	16:55 3.9	S 19	19	14:40 4.4	18:50 -0.1	25:10 4.5	31:00 2.1	E W 19	15:10 5.1	17:30 0.0	25:10 5.0
	F 20	3:13 4.2	10:10 0.0	17:20 4.2	● M 20	20	15:30 4.6	19:00 -0.3	25:40 4.8	31:30 1.7	Th 20	15:50 5.2	17:40 0.2	25:20 5.0
	● S 21	3:57 4.4	10:44 -0.3	17:46 4.4	Tu 21	21	16:10 4.9	19:30 -0.4	26:10 4.9	32:00 1.7	F 21	16:30 0.4	17:50 5.2	25:30 0.5
	S 22	4:35 4.5	11:18 -0.4	18:14 4.5	W 22	22	16:50 1.4	19:50 5.0	26:40 -0.2	32:30 4.9	P S 22	17:10 0.3	18:00 5.0	25:40 1.0
	M 23	5:13 4.6	11:54 -0.5	18:43 4.7	E Th 23	23	17:30 1.1	20:10 4.9	27:10 0.1	33:00 4.9	S 23	17:50 0.2	18:10 4.6	25:50 1.6
	Tu 24	6:02 2.0	12:32 4.7	19:13 -0.4	F 24	24	18:10 1.0	20:50 4.7	27:40 0.5	33:30 4.8	M 24	18:30 0.3	18:30 4.2	26:00 2.2
	W 25	1:01 1.9	6:31 4.6	13:10 -0.2	S 25	25	18:50 0.9	21:30 4.5	28:20 1.1	34:00 4.5	○ Tu 25	19:10 0.6	18:50 3.6	26:10 2.7
E D	Th 26	1:43 1.8	7:16 4.4	13:51 0.3	S 26	26	19:30 0.9	22:10 4.0	28:50 1.8	34:30 4.3	S W 26	19:50 0.9	19:10 3.3	26:20 2.7
	F 27	2:28 1.7	8:04 4.2	14:35 0.8	○ M 27	27	20:10 1.0	22:50 3.6	29:30 2.4	35:00 4.0	Th 27	20:30 1.2	19:30 3.7	26:30 2.6
	S 28	3:18 1.5	8:58 3.8	15:21 1.5	Tu 28	28	20:50 1.1	23:30 8.1	29:50 2.7	35:30 3.8	F 28	20:50 1.1	19:50 4.0	26:40 2.7
	S 29	4:09 1.4	9:58 3.5	16:13 2.0	W 29	29	21:30 1.0	24:10 3.5	30:30 2.8	36:00 3.8	S 29	21:30 1.5	20:10 8.2	26:50 4.2
	M 30	5:17 1.3	11:47 3.2	17:23 2.5	S Th 30	30	22:10 0.8	24:50 3.8	31:10 2.7	36:30 3.8	S 30	22:10 4.0	20:30 0.7	27:00 4.4
	Tu 31	6:38 1.0	14:08 3.4	18:49 2.8	F 31	31	22:50 8.9	25:30 0.4	31:50 4.1	37:00 2.7				

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●, new moon; ○, 1st quar.; ○, full moon; ○, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
O E A N C	M	1	8:52	10:00	16:34	22:25	4.4	0.6	4.5	1.3	○	Th	1	5:00	10:44	16:40	22:58	4.7	1.4	4.6	0.2	○	S	1	5:32	10:50	16:28	23:10	4.4	2.2	4.6	—0.2
	Tu	2	4:32	10:43	16:58	23:00	4.7	0.6	4.7	0.9		F	2	5:34	11:12	17:00	23:30	4.7	1.6	4.7	0.0	A	S	2	6:00	11:20	16:54	23:40	4.4	2.2	4.7	—0.4
	W	3	5:06	11:12	17:20	23:26	4.8	0.7	4.7	0.6		S	3	6:04	11:42	17:23	23:57	4.6	1.7	4.8	—0.1	M	3	6:28	11:51	17:20		4.4	2.3	4.7		
	Th	4	5:40	11:40	17:42	23:57	4.9	0.8	4.7	0.4	A	S	4	6:32	12:14	17:48		4.5	1.9	4.7		N	Tu	4	0:10	6:58	12:30	17:50	—0.4	4.4	2.4	4.6
	F	5	6:10	12:10	18:02		4.7	1.1	4.7		M	5	0:30	7:05	12:43	18:10	—0.1	4.4	2.1	4.6		W	5	0:45	7:34	13:08	18:22	—0.3	4.4	2.4	4.4	
	S	6	0:22	6:40	12:40	18:25	0.3	4.5	1.5	4.6	N	Tu	6	1:00	7:35	13:20	18:40	0.1	4.2	2.4	4.4	Th	6	1:20	8:07	13:50	18:56	0.0	4.3	2.5	4.2	
	S	7	0:55	7:10	13:08	18:48	0.4	4.2	1.8	4.5	W	7	1:35	8:16	14:00	19:08	0.3	3.9	2.7	4.2	F	7	2:00	8:50	14:48	19:40	0.3	4.2	2.6	3.9		
	M	8	1:28	7:44	13:48	19:12	0.5	4.0	2.2	4.3	Th	8	2:15	9:04	14:55	19:46	0.6	3.8	2.8	8.8	S	8	2:47	9:38	15:50	20:35	0.7	4.1	2.7	3.6		
	Tu	9	2:04	8:25	14:10	19:38	0.7	3.6	2.5	4.1	○	F	9	3:07	10:10	16:16	20:40	1.0	3.6	2.8	3.5	○	S	9	3:44	10:34	17:09	22:00	1.2	4.0	2.4	3.2
	W	10	2:45	9:13	15:00	20:08	1.0	3.3	2.7	3.8	S	10	4:18	11:52	18:00	22:32	1.3	3.6	2.8	3.1	M	10	4:54	11:38	18:22		1.7	3.9	2.0			
	Th	11	3:41	10:50	16:30	21:00	1.3	3.2	2.7	3.4	S	11	5:43	13:10	19:22		1.6	3.8	2.3		E	Tu	11	0:17	6:15	12:40	19:20	3.1	2.0	3.9	1.5	
	F	12	5:00	13:33	18:34	22:55	1.6	3.4	2.7	3.1	M	12	1:10	7:14	13:58	20:16	3.2	1.6	4.0	1.7	W	12	1:50	7:30	13:55	20:17	3.5	2.1	4.1	0.9		
S	13	6:34	14:28	20:00		1.5	3.7	2.6		E	Tu	13	2:25	8:15	14:40	20:57	3.7	1.5	4.2	1.2	Th	13	3:05	8:33	14:25	21:06	4.0	2.1	4.4	0.2		
S	14	1:40	7:50	15:00	20:50	3.3	1.3	4.0	2.1	W	14	3:14	9:08	15:12	21:34	4.2	1.4	4.5	0.5	F	14	4:00	9:28	15:13	21:54	4.4	2.0	4.7	—0.4			
M	15	2:46	8:50	15:30	21:30	3.8	1.1	4.4	1.4	Th	15	4:02	9:52	15:52	22:10	4.7	1.3	4.8	—0.1	P	S	15	4:46	10:18	15:55	22:35	4.8	2.0	4.9	—0.9		
Tu	16	3:34	9:41	15:58	22:05	4.3	0.8	4.7	0.9	●	F	16	4:47	10:35	16:25	22:48	5.1	1.3	5.0	—0.6	●	S	16	5:30	11:00	16:35	23:20	5.0	2.0	5.1	—1.1	
W	17	4:12	10:21	16:30	22:40	4.8	0.7	4.9	0.4	P	S	17	5:30	11:15	17:00	23:30	5.3	1.5	5.1	—0.9	S	M	17	6:14	11:40	17:15	23:59	5.0	2.0	5.1	—1.2	
Th	18	4:50	11:00	17:00	23:15	5.2	0.6	5.0	—0.1	S	S	18	6:14	11:55	17:32		5.3	1.7	5.0		Tu	18	6:55	12:24	17:55		5.0	2.1	5.0			
F	19	5:30	11:38	17:30	23:50	5.4	0.8	5.0	—0.4	S	M	19	0:10	6:57	12:37	18:06	—1.0	5.1	1.9	5.0	W	19	0:44	7:36	13:05	18:36	—1.0	4.8	2.1	4.8		
S	20	6:14	12:15	18:00		5.3	1.1	5.0		Tu	20	0:55	7:47	13:18	18:42	—0.8	4.9	2.2	4.7	Th	20	1:24	8:18	13:52	19:18	—0.6	4.7	2.2	4.4			
S	21	0:25	6:58	12:54	18:30	—0.5	5.1	1.5	4.9	W	21	1:37	8:35	14:05	19:20	—0.5	4.5	2.5	4.4	F	21	2:08	9:03	14:45	20:06	0.0	4.4	2.3	4.0			
M	22	1:05	7:45	13:35	19:04	—0.4	4.8	2.0	4.6	Th	22	2:25	9:32	15:04	20:10	0.1	4.2	2.7	3.9	S	22	2:52	9:45	15:50	21:10	0.6	4.2	2.3	3.5			
Tu	23	1:53	8:38	14:20	19:38	—0.1	4.2	2.5	4.3	○	F	23	3:20	10:45	16:20	21:18	0.7	3.9	2.7	3.4	○	S	23	3:48	10:36	17:00	22:48	1.3	4.0	2.2	3.1	
W	24	2:43	9:50	15:15	20:19	0.3	3.8	2.8	3.9	S	24	4:22	12:00	18:00	23:40	1.3	3.8	2.6	3.0	M	24	4:50	11:35	18:20		2.0	3.8	2.0				
Th	25	3:46	11:30	16:38	21:23	0.8	3.6	2.8	3.5	S	25	5:50	13:07	19:27		1.8	3.8	2.1		Tu	25	1:15	5:58	12:30	19:32	3.0	2.5	3.7	1.6			
F	26	5:04	13:12	18:35	23:50	1.2	3.7	2.8	3.2	E	M	26	1:50	7:17	14:00	20:22	3.3	2.0	3.8	1.7	W	26	3:00	7:15	13:30	20:32	3.3	2.7	3.8	1.1		
S	27	6:38	14:14	20:05		1.5	3.9	2.4		Tu	27	3:02	8:20	14:38	21:00	3.7	2.1	4.0	1.1	Th	27	3:57	8:20	14:18	21:15	3.5	2.8	4.0	0.7			
S	28	2:00	7:55	14:55	20:54	3.4	1.5	4.0	1.8	W	28	3:50	9:07	15:08	21:38	4.0	2.2	4.2	0.6	F	28	4:35	9:14	14:52	21:50	3.8	2.7	4.1	0.3			
M	29	3:05	9:00	15:29	21:34	3.8	1.5	4.1	1.4	Th	29	4:30	9:45	15:32	22:08	4.3	2.2	4.3	0.2	A	S	29	5:06	9:58	15:30	22:24	4.0	2.8	4.3	—0.1		
Tu	30	3:51	9:42	15:54	22:03	4.1	1.4	4.3	1.0	F	30	5:05	10:18	16:00	22:40	4.3	2.2	4.5	0.0	○	S	30	5:32	10:34	16:06	22:55	4.2	2.6	4.5	—0.3		
W	31	4:28	10:15	16:16	22:29	4.5	1.4	4.5	0.5											○	M	31	5:55	11:10	16:37	23:25	4.4	2.5	4.6	—0.4		

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JANUARY.												
Moon.	Day of—		Time and Height									
	W.	Mo.	Low Wa									
R D	M	1	5:52	12:20								
			1.1	7.1								
	Tu	2	0:34	6:40								
			6.8	1.9								
A	W	3	1:39	7:34								
			5.8	2.7								
	Th	4	2:55	8:46								
			5.0	3.2								
N	F	5	4:30	10:20								
			5.0	3.4								
	S	6	5:46	11:44								
			5.3	3.3								
C	S	7	6:36	12:40								
			5.7	3.1								
	M	8	0:16	7:09								
			0.9	6.3								
E	Tu	9	0:54	7:40	13:50	19:14						
			0.3	6.9	2.6	6.4						
	W	10	1:33	8:12	14:17	19:50						
			-0.2	7.5	2.2	6.6						
P	Th	11	2:11	8:45	14:47	20:24						
			-0.6	8.0	1.9	6.9						
	F	12	2:47	9:21	15:19	21:00						
			-0.8	8:4	1.6	7.0						
S	S	13	3:26	9:58	15:55	21:40						
			-0.8	8.5	1.4	7.1						
	S	14	4:06	10:35	16:34	22:21						
			-0.6	8.4	1.2	7.1						
C	M	15	4:48	11:15	17:15	23:10						
			-0.1	8.1	1.1	6.9						
	Tu	16	5:31	11:56	18:01							
			0.5	7.7	1.1							
E	W	17	0:08	6:20	12:38	18:58						
			6.7	1.3	6.9	1.2						
	Th	18	1:05	7:10	13:31	20:01						
			6.4	1.9	6.4	1.4						
P	F	19	2:25	8:25	14:35	21:15						
			6.0	2.7	6.0	1.3						
	S	20	3:59	10:07	15:52	22:30						
			5.9	3.1	5.8	0.9						
S	S	21	5:29	11:48	17:06	23:36						
			6.1	3.0	6.2	0.4						
	M	22	6:39	12:56	18:11							
			6.6	2.6	6.6							
C	Tu	23	0:24	7:30	13:45	19:05						
			-0.3	7.1	2.2	7.1						
	W	24	1:24	8:11	14:26	19:54						
			-0.9	7.6	1.8	7.4						
E	Th	25	2:08	8:49	14:59	20:36						
			-1.0	8.0	1.4	7.6						
	F	26	2:50	9:24	15:32	21:16						
			-1.0	8.1	1.2	7.6						
P	S	27	3:29	9:56	16:06	21:55						
			-0.8	8.2	1.1	7.4						
	S	28	4:07	10:29	16:39	22:33						
			-0.3	8.1	1.1	7.0						
S	M	29	4:45	11:02	17:12	23:13						
			0.3	7.8	1.1	6.7						
	Tu	30	5:20	11:35	17:48	23:53						
			1.0	7.8	1.3	6.3						
E	W	31	5:54	12:12	18:31							
			1.8	6.7	1.5							

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The time used is Cosmopolitan Standard, 135th meridian, E; 0° is midnight, 12° is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☉, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar., E, moon on the equator, N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

		JUNE.												Time and Height of High and Low Water.			
M	D					M	D					M	D				
		S	1	0:11	5:38	11:21	18:29	Tu	1	0:47	6:20	11:44	19:00	F	1	2:21	8:40
N	M	2	1:10	6:26	11:50	19:34	W	2	1:54	7:41	13:15	20:18	S	2	3:23	9:52	16:36
	Tu	3	2:26	7:50	13:20	20:39	Th	3	3:10	9:25	15:23	21:44	S	3	4:32	10:53	17:17
D	W	4	3:56	10:31	15:57	22:25	F	4	4:19	10:41	16:51	23:02	M	4	5:28	11:47	18:16
	Th	5	5:12	11:44	17:24	23:33	S	5	5:17	11:35	17:45	23:58	Tu	5	6:28	12:37	19:06
E	F	6	6:08	12:26	18:20	24:18	S	6	6:10	12:21	18:39	24:11	W	6	7:20	13:23	19:57
	S	7	6:59	13:02	19:06	24:56	M	7	6:52	13:05	19:26	24:56	Th	7	8:08	14:08	20:42
A	S	8	7:45	13:40	19:49	25:29	Tu	8	7:35	13:46	20:11	25:29	F	8	8:50	14:53	21:23
	M	9	8:27	14:16	20:29	26:00	W	9	8:12	14:16	20:56	26:00	S	9	9:32	15:38	22:04
P	Tu	10	9:04	14:52	21:09	26:31	Th	10	8:48	14:59	21:40	26:31	S	10	10:17	16:25	22:40
	W	11	9:39	15:30	21:52	26:57	F	11	9:29	15:53	22:26	26:57	M	11	10:54	17:13	23:16
C	Th	12	10:03	16:11	22:38	27:19	S	12	10:10	16:40	23:15	27:19	Tu	12	11:42	18:03	23:52
	F	13	10:29	16:55	23:26	27:37	S	13	10:55	17:29	24:08	27:37	W	13	12:32	18:58	24:33
S	S	14	11:00	17:45	24:20	27:51	M	14	11:51	18:25	24:56	27:51	Th	14	13:25	19:58	25:19
	S	15	11:35	18:40	25:10	28:02	Tu	15	12:40	19:16	25:49	28:02	F	15	14:20	20:58	26:10
C	M	16	12:15	19:35	26:05	28:10	W	16	13:35	20:11	26:46	28:10	S	16	15:17	21:58	27:06
	Tu	17	13:00	20:30	27:00	28:15	Th	17	14:25	21:08	27:41	28:15	S	17	16:16	22:58	28:06
S	W	18	13:45	21:25	27:49	28:18	F	18	15:15	22:00	28:34	28:18	M	18	17:17	23:58	29:10
	Th	19	14:30	22:15	28:37	28:20	S	19	16:05	22:55	29:26	28:20	Tu	19	18:10	24:58	30:18
E	F	20	15:15	23:05	29:25	28:21	S	20	16:55	23:45	30:17	28:21	W	20	19:05	25:58	31:30
	S	21	16:00	23:50	30:15	28:22	M	21	17:45	24:35	31:08	28:22	Th	21	20:00	26:58	32:46
A	S	22	16:45	24:35	31:05	28:23	Tu	22	18:35	25:25	32:00	28:23	F	22	21:00	27:58	34:06
	M	23	17:30	25:20	32:00	28:24	W	23	19:25	26:15	33:00	28:24	S	23	22:00	28:58	35:30
P	Tu	24	18:15	26:05	33:00	28:25	Th	24	20:15	27:05	34:00	28:25	S	24	23:00	29:58	37:00
	W	25	19:00	26:50	34:00	28:26	F	25	21:05	27:55	35:00	28:26	M	25	24:00	30:58	38:36
N	Th	26	19:45	27:35	35:00	28:27	S	26	21:55	28:45	36:00	28:27	Tu	26	25:00	31:58	40:18
	F	27	20:30	28:20	36:00	28:28	S	27	22:45	29:35	37:00	28:28	W	27	26:00	32:58	42:06
D	S	28	21:15	29:05	37:00	28:29	M	28	23:35	30:25	38:00	28:29	Th	28	27:00	33:58	44:00
	S	29	22:00	29:50	38:00	28:30	Tu	29	24:25	31:15	39:00	28:30	F	29	28:00	34:58	46:00
C	M	30	22:45	30:35	39:00	28:31	W	30	25:15	32:05	40:00	28:31	S	30	29:00	35:58	48:06
							Th	31	26:05	32:55	41:00	28:32					

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The time used is Cosmopolitan Standard, 135th meridian E. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar. E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										AUGUST.									
Moon.	Day of W. Mo.	Time and Height of High and Low Water.								Moon.	Day of W. Mo.	Time and Height of High and Low Water.							
	S 1	2:46	9:15	15:39	21:47					P	W 1	4:26	11:00	17:58					
		6.3	1.4	6.1	2.5							6.0	0.6	6.4					
	M 2	3:49	10:20	16:56	23:04					S	Th 2	0:12	5:35	12:00	18:56				
		6.3	0.9	6.5	2.6							2.8	6.5	-0.1	6.9				
	Tu 3	4:51	11:20	18:02							F 3	1:12	6:38	12:55	19:11				
		6.5	0.2	7.0								2.4	6.9	-0.6	7.5				
P	W 4	0:11	5:49	12:14	18:58					O	S 4	1:54	7:25	13:48	20:22				
		2.8	6.8	-0.5	7.5							1.9	7.4	-0.9	7.9				
	Th 5	1:06	6:42	13:06	19:47						S 5	2:30	8:12	14:28	21:00				
		2.0	7.2	-1.0	8.0							1.4	7.7	-1.0	8.1				
S	F 6	1:54	7:31	13:52	20:32						M 6	3:08	8:56	15:10	21:36				
		1.8	7.4	-1.4	8.2							1.1	7.7	-0.9	8.2				
	S 7	2:37	8:17	14:38	21:15						Tu 7	3:44	9:38	15:30	22:12				
		1.6	7.6	-1.5	8.4							0.9	7.6	-0.4	8.1				
	S 8	3:19	9:03	15:23	21:56						W 8	4:20	10:20	16:32					
		1.4	7.5	-1.2	8.4							0.8	7.3	0.2	7.9				
	M 9	4:02	9:48	16:07	22:38					E	Th 9	4:56	11:08	17:10	22:25				
		1.4	7.3	-0.7	8.2							0.9	7.0	0.9	7.3				
	Tu 10	4:46	10:35	16:52	23:22						F 10	5:35	11:44	17:47					
		1.5	7.0	0.0	7.8							1.1	6.5	1.6					
	W 11	5:33	11:25	17:40							S 11	0:02	6:20	12:28	18:26				
		1.6	6.5	0.8								6.8	1.3	6.0	2.4				
	Th 12	0:05	6:19	12:23						C	S 12	0:42	7:09	13:25	19:10				
		7.4	1.7	6.1	1.6							6.2	1.7	5.5	3.1				
E	F 13	0:49	7:12	13:24	19:25					A	M 13	1:26	8:06	14:42	20:15				
		6.7	1.8	5.7	2.4							5.6	2.0	5.1	3.7				
	S 14	1:40	8:10	14:35	20:29						Tu 14	2:25	9:15	15:20	22:30				
		6.8	1.9	5.3	3.0							5.9	2.1	5.0	3.9				
	S 15	2:37	9:14	15:02	21:52						W 15	3:41	10:25	17:42					
		5.9	1.9	6.1	3.3							5.1	1.9	5.2					
A	M 16	3:38	10:14	17:24	23:18					N	Th 16	0:07	4:58	11:23	18:23				
		5.7	1.8	5.3	3.4							3.6	5.4	1.4	5.6				
	Tu 17	4:38	11:09	18:20							F 17	0:50	5:58	12:12	19:02				
		5.7	1.4	5.6								3.2	5.8	-1.1	6.5				
	W 18	0:22	5:32	11:56	18:57						S 18	1:20	6:40	12:56					
		3.2	5.8	1.0	6.1							2.7	6.2	-0.2	7.2				
	Th 19	1:04	6:17	12:37	19:28						S 19	1:48	7:21	13:35	20:07				
		3.0	6.1	0.5	6.6							2.2	6.7	-0.3	7.3				
N	F 20	1:37	6:57	13:16	19:57					●	M 20	2:14	8:00	14:14	20:40				
		2.7	6.3	0.1	7.1							1.6	7.2	-0.5	8.2				
●	S 21	2:04	7:34	13:53	20:29						Tu 21	2:45	8:38	14:54	21:14				
		2.4	6.5	-0.3	7.7							1.1	7.6	-0.6	8.4				
	S 22	2:32	8:07	14:32	21:08						W 22	3:18	9:16	15:34	21:47				
		2.1	6.7	-0.5	8.0							0.6	7.8	-0.5	8.4				
	M 23	3:03	8:43	15:08						E	Th 23	3:54	9:58	16:11	22:24				
		1.6	6.8	-0.5	8.2							0.3	7.9	-0.1	8.2				
	Tu 24	3:37	9:20	15:48	22:16						F 24	4:34	10:42	16:53	23:04				
		1.5	7.0	-0.4	8.2							0.2	7.8	0.3	7.7				
	W 25	4:13	10:02	16:28	22:53						S 25	5:16	11:28	17:29	23:40				
		1.3	7.0	0.0	8.0							0.4	7.5	1.1	7.0				
	Th 26	4:54	10:50	17:10							S 26	6:02	12:20	18:15					
		1.1	6.9	0.5	7.7							0.6	7.0	1.9					
E	F 27	5:39	11:45	17:56						D	M 27	0:23	7:00	18:27	19:15				
		1.0	6.8	1.2								6.4	0.9	6.4	2.3				
	S 28	0:13	6:30	12:37	18:43						Tu 28	1:17	8:09	14:54	20:54				
		7.1	1.1	6.6	1.7							5.8	1.2	5.9	3.4				
D	S 29	1:02	7:30	13:50	19:46						W 29	2:40	9:28	16:35	23:03				
		6.6	1.2	6.3	2.5							5.5	1.2	6.0	3.4				
	M 30	2:00	8:39	15:12	21:12					S	Th 30	4:15	10:46	17:58					
		6.1	1.2	6.1	3.0							5.7	0.9	6.1					
	Tu 31	3:09	9:51	16:40	22:50						F 31	0:21	5:34	11:54	18:52				
		5.9	1.0	6.1	3.1							2.8	6.3	0.4	6.7				

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JANUARY.										FEBRUARY.										MARCH.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
E D	M	1	1:25 0.8	7:28 9.1	14:12 8.1	19:18 8.1	A	Th	1	2:25 2.2	8:18 9.2	15:16 2.0	20:43 7.3	D	Th	1	1:20 2.0	6:58 9.3	13:52 1.6	19:27 8.1									
	Tu	2	2:09 1.0	8:12 9.1	15:03 2.9	20:10 7.6		F	2	3:09 2.9	9:02 9.0	16:05 1.9	21:48 7.0		F	2	2:00 2.6	7:40 9.0	14:38 1.6	20:20 7.7									
	W	3	2:52 1.8	8:55 9.0	15:53 2.6	21:10 7.2		S	3	3:58 3.5	9:48 8.8	16:58 1.7	22:47 6.7		S	3	2:43 3.2	8:25 8.8	15:25 1.5	21:15 7.4									
	Th	4	3:40 2.5	9:40 9.0	16:45 2.3	22:12 6.9		S	4	4:53 4.0	10:35 8.7	17:52 1.5	23:58 6.7		S	4	3:32 3.8	9:09 8.5	16:15 1.5	22:18 7.1									
A	F	5	4:27 3.2	10:30 8.9	17:38 1.9	23:19 6.7	N	M	5	5:59 4.4	11:26 8.6	18:47 1.2		N	M	5	4:29 4.2	9:59 8.3	17:10 1.5	23:22 7.0									
	S	6	5:25 3.8	11:17 8.9	18:31 1.4			Tu	6	0:55 6.9	7:05 4.6	12:17 8.6	19:41 0.8		Tu	6	5:35 4.5	10:53 8.2	18:08 1.3										
	S	7	0:22 6.7	6:30 4.1	12:02 8.9	19:23 1.0		W	7	1:51 7.2	8:06 4.6	13:10 8.7	20:31 0.4		W	7	0:25 7.2	6:42 4.6	11:51 8.2	19:08 1.1									
	M	8	1:23 7.0	7:33 4.4	12:50 8.9	20:12 0.6		Th	8	2:42 7.6	9:04 4.4	14:01 8.9	21:20 0.0		Th	8	1:20 7.5	7:42 4.3	12:50 8.4	20:08 0.8									
N	Tu	9	2:17 7.8	8:31 4.5	13:37 9.0	21:00 0.1	O	F	9	3:29 8.1	9:55 4.1	14:52 9.1	22:08 -0.3	C	F	9	2:11 7.9	8:37 3.9	13:45 8.6	20:56 0.6									
	W	10	3:08 7.7	9:25 4.4	14:24 9.1	21:45 -0.3		S	10	4:11 8.4	10:41 3.7	15:43 9.2	22:53 -0.3		S	10	2:56 8.4	9:27 3.4	14:40 8.9	21:45 0.5									
	Th	11	3:55 8.0	10:17 4.3	15:10 9.1	22:29 -0.6		S	11	4:53 8.8	11:27 3.2	16:33 9.3	23:38 -0.1		S	11	3:38 8.7	10:12 2.8	15:32 9.2	22:32 0.5									
	F	12	4:40 8.4	11:06 4.1	15:58 9.2	23:12 -0.7		M	12	5:35 9.2	12:10 2.7	17:28 9.2			M	12	4:18 9.0	10:55 2.2	16:23 9.4	23:18 0.8									
C	S	13	5:22 8.8	11:50 3.8	16:45 9.1	23:56 -0.6	E	Tu	13	0:24 0.3	6:15 9.3	12:52 2.3	18:15 9.1	P	Tu	13	4:57 9.2	11:39 1.6	17:12 9.6										
	S	14	6:05 9.1	12:37 3.5	17:36 9.0			W	14	1:05 0.9	6:55 9.3	13:37 1.9	19:08 8.3		W	14	0:02 1.2	5:37 9.4	12:22 1.2	18:02 9.4									
	M	15	0:40 -0.2	6:47 9.3	13:24 8.2	18:28 8.7		Th	15	1:51 1.6	7:36 9.3	14:24 1.6	20:06 8.4		Th	15	0:47 1.7	6:18 9.3	13:06 0.8	18:54 9.1									
	Tu	16	1:25 0.3	7:30 9.3	14:10 2.8	19:22 8.4		F	16	2:37 2.4	8:20 9.1	15:15 1.3	21:05 8.0		F	16	1:31 2.4	7:00 9.2	13:53 0.6	19:50 8.7									
P	W	17	2:12 1.0	8:13 9.3	14:57 2.4	20:20 8.1	C	S	17	3:26 3.2	9:07 9.0	16:08 1.1	22:10 7.5	S	S	17	2:20 3.0	7:45 9.1	14:43 0.6	20:47 8.2									
	Th	18	3:00 1.8	8:58 9.2	15:47 2.0	21:25 7.8		S	18	4:22 3.9	9:55 8.9	17:06 0.9	23:20 7.3		S	18	3:10 3.6	8:30 8.9	15:39 0.7	21:48 7.7									
	F	19	3:49 2.7	9:44 9.0	16:42 1.6	22:33 7.4		M	19	5:25 4.3	10:48 8.9	18:08 0.7			M	19	4:04 4.1	9:22 8.7	16:35 0.8	22:52 7.4									
	S	20	4:44 3.5	10:31 8.9	17:40 1.1	23:42 7.2		Tu	20	0:25 7.2	6:29 4.5	11:45 8.8	19:09 0.5		Tu	20	5:03 4.3	10:20 8.5	17:37 1.0	23:55 7.3									
S	S	21	5:50 4.0	11:20 9.0	18:37 0.6		W	W	21	1:25 7.2	7:33 4.5	12:42 8.8	20:06 0.3	Th	W	21	6:09 4.3	11:22 8.8	18:39 1.1										
	M	22	0:49 7.2	6:55 4.4	12:12 9.1	19:36 0.1		Th	22	2:16 7.5	8:32 4.2	13:39 8.9	21:00 0.2		Th	22	0:52 7.4	7:11 4.1	12:26 8.3	19:39 1.1									
	Tu	23	1:50 7.3	7:55 4.5	13:03 9.2	20:30 -0.3		F	23	3:08 7.8	9:25 3.8	14:34 9.0	21:49 0.2		F	23	1:41 7.7	8:08 3.6	13:27 8.4	20:32 1.2									
	W	24	2:43 7.6	8:52 4.5	13:55 9.3	21:21 -0.6		S	24	3:45 8.2	10:14 3.2	15:25 9.1	22:32 0.3		S	24	2:25 8.2	9:00 3.0	14:22 8.6	21:22 1.3									
●	Th	25	3:33 7.9	9:47 4.2	14:45 9.4	22:10 -0.6	E	S	25	4:24 8.6	11:00 2.7	16:15 9.0	23:17 0.6	●	S	25	3:05 8.5	9:48 2.3	15:14 8.7	22:09 1.4									
	F	26	4:17 8.2	10:38 3.9	15:35 9.4	22:55 -0.5		M	26	5:02 9.0	11:42 2.3	17:02 8.9	23:57 1.0		M	26	3:45 8.9	10:32 1.8	16:02 8.9	22:50 1.6									
	S	27	4:59 8.4	11:23 3.5	16:27 9.2	23:39 -0.3		Tu	27	5:40 9.2	12:26 1.9	17:50 8.8			Tu	27	4:21 9.2	11:14 1.3	16:50 8.9	23:33 1.9									
	S	28	5:38 8.9	12:12 3.1	17:15 8.9			W	28	0:40 1.4	6:19 9.8	13:10 1.7	18:37 8.5		W	28	5:01 9.3	11:55 1.1	17:34 8.9										
E	M	29	0:20 0.2	6:18 9.1	12:58 2.8	18:05 8.6	C	Th	29	1:15 2.2	7:00 9.2	13:10 0.9		A	Th	29	0:15 2.2	6:00 9.2	12:37 0.9	18:20 8.7									
	Tu	30	1:02 0.8	6:57 9.2	13:43 2.5	18:55 8.2		F	30	2:07 2.7	7:40 9.1	14:00 0.8			F	30	0:57 2.7	6:20 9.1	13:18 0.8	19:08 8.5									
	W	31	1:42 1.4	7:37 9.8	14:30 2.2	19:48 7.8		S	31	2:50 3.2	8:10 8.9	14:00 0.9			S	31	1:40 3.2	7:00 8.9	14:04 0.9	19:58 8.2									

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 5.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Taku Mean Local Civil, for the meridian 117° 52' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



JULY.										AUGUST.										d
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.						
	S 1	4:48	10:25	16:44	22:45	P W 1	6:08	12:20	18:25	23:46		S 1	0:18	7:40	13:50	20:06				
	M 2	5:42	11:45	17:45	23:30	S Th 2	7:06	13:24	19:26	24:46		S 2	1:16	8:36	14:40	20:58				
	Tu 3	6:40	12:40	18:54	24:00	F 3	8:00	14:20	20:26	25:46		M 3	2:14	9:28	15:20	21:50				
P W 4	0:20	7:55	13:44	19:55	24:55	○ S 4	1:32	8:57	15:10	21:28		Tu 4	3:07	10:16	16:00	22:36				
	Th 5	1:08	8:23	14:40	20:51	S 5	2:25	9:50	15:56	22:16		W 5	3:57	10:58	16:38	23:20				
S 6	1:56	9:18	15:22	21:48	21:48	M 6	3:16	10:34	16:38	23:02		Th 6	4:46	11:39	17:17	24:00				
○ F 6	2:44	10:06	16:22	22:37	22:37	Tu 7	4:09	11:20	17:18	23:50		F 7	5:34	12:21	18:00	24:50				
S 7	3:34	10:55	17:06	23:25	23:25	W 8	5:00	12:04	17:55	24:40		S 8	6:20	13:02	18:36	25:40				
S 8	4:22	11:40	17:50	24:10	24:10	E Th 9	5:50	12:50	18:40	25:30		S 9	7:00	13:40	19:10	26:30				
M 9	5:10	12:24	18:34	24:55	24:55	F 10	6:40	13:34	19:30	26:20		M 10	7:40	14:20	19:50	27:20				
Tu 10	6:00	13:14	19:24	25:40	25:40	S 11	7:30	14:24	20:20	27:10		Tu 11	8:20	15:10	20:40	28:10				
W 11	6:50	14:04	20:14	26:30	26:30	○ S 12	8:20	15:14	21:10	28:00		W 12	9:10	16:00	21:20	29:00				
E Th 12	7:40	14:54	21:04	27:20	27:20	A M 13	9:10	16:04	22:00	28:50		Th 13	10:00	16:50	22:10	30:00				
○ F 13	8:30	15:44	21:54	28:10	28:10	Tu 14	10:00	16:54	22:50	29:40		F 14	10:50	17:40	23:00	31:00				
S 14	9:20	16:34	22:44	29:00	29:00	W 15	10:50	17:44	23:40	30:30		S 15	11:40	18:30	24:00	32:00				
A M 16	10:10	17:24	23:34	29:50	29:50	N Th 16	11:40	18:34	24:30	31:20		S 16	12:30	19:20	25:00	33:00				
Tu 17	11:00	18:14	24:24	30:40	30:40	F 17	12:30	19:24	25:20	32:10		M 17	13:20	20:10	25:50	34:00				
W 18	11:50	19:04	25:14	31:30	31:30	S 18	13:20	20:14	26:10	33:00		Tu 18	14:10	21:00	26:40	35:00				
Th 19	12:40	19:54	26:04	32:20	32:20	S 19	14:10	21:04	27:00	34:00		W 19	15:00	21:50	27:30	36:00				
N F 20	13:30	20:44	26:54	33:10	33:10	● M 20	15:00	21:54	27:50	35:00		Th 20	15:50	22:40	28:20	37:00				
● S 21	14:20	21:34	27:44	34:00	34:00	Tu 21	15:50	22:44	28:40	36:00		F 21	16:40	23:30	29:10	38:00				
S 22	15:10	22:24	28:34	34:50	34:50	W 22	16:40	23:34	29:30	37:00		S 22	17:30	24:20	30:00	39:00				
M 23	16:00	23:14	29:24	35:40	35:40	E Th 23	17:30	24:24	30:20	38:00		S 23	18:20	25:10	30:50	40:00				
Tu 24	16:50	24:04	30:14	36:30	36:30	F 24	18:20	25:14	31:10	39:00		M 24	19:10	26:00	31:40	41:00				
W 25	17:40	24:54	31:04	37:20	37:20	S 25	19:10	26:04	32:00	40:00		Tu 25	20:00	26:50	32:30	42:00				
Th 26	18:30	25:44	31:54	38:10	38:10	S 26	20:00	26:54	32:50	41:00		W 26	20:50	27:40	33:20	43:00				
E F 27	19:20	26:34	32:44	39:00	39:00	● M 27	20:50	27:44	33:40	42:00		Th 27	21:40	28:30	34:10	44:00				
S 28	20:10	27:24	33:34	39:50	39:50	Tu 28	21:40	28:34	34:30	43:00		F 28	22:30	29:20	35:00	45:00				
● S 29	21:00	28:14	34:24	40:40	40:40	W 29	22:30	29:24	35:20	44:00		S 29	23:20	30:10	35:50	46:00				
M 30	21:50	29:04	35:14	41:30	41:30	S Th 30	23:20	30:14	36:10	45:00		S 30	0:10	31:00	36:40	47:00				
Tu 31	22:40	29:54	36:04	42:20	42:20	F 31	24:10	31:04	37:00	46:00										

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The time used is Taku Mean Local Civil, for the meridian 117° 52' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ♀, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
O	M	1	1:05 8.3	8:07 1.5	13:59 8.1	20:35 2.9	○	Th	1	2:44 8.3	9:18 2.7	14:41 9.0	21:45 0.8	○	S	1	3:15 7.9	9:37 3.9	14:45 9.3	22:00 -0.1									
	Tu	2	2:03 8.5	8:59 1.6	14:42 8.5	21:25 2.2		F	2	3:33 8.5	10:05 2.9	15:21 9.2	22:28 0.4	A	S	2	4:03 8.2	10:26 3.9	15:25 9.3	22:42 -0.3									
	W	3	2:57 8.8	9:47 1.7	15:21 8.9	22:10 1.6		S	3	4:19 8.6	10:50 3.1	16:00 9.4	23:10 0.0		M	3	4:48 8.4	11:12 3.9	16:09 9.2	23:24 -0.4									
	Th	4	3:47 8.9	10:32 1.9	16:00 9.1	22:53 1.1	A	S	4	5:04 8.8	11:35 3.3	16:41 9.3	23:50 -0.1	N	Tu	4	5:32 8.5	12:00 4.0	16:52 9.1	23:52 ...									
	F	5	4:34 9.0	11:09 2.1	16:38 9.2	23:35 0.8		M	5	5:50 8.8	12:20 3.5	17:23 9.2	...		W	5	6:05 -0.4	6:15 8.8	12:48 3.9	17:37 8.8									
A	S	6	5:19 8.9	11:57 2.5	17:17 9.3	...	N	Tu	6	6:30 -0.1	6:33 8.8	13:07 8.7	18:05 8.9		Th	6	6:47 -0.2	7:00 9.1	13:35 3.9	18:25 8.5									
	S	7	6:17 0.6	6:04 8.7	12:40 2.9	17:58 9.2		W	7	1:12 0.1	7:20 8.7	13:55 3.9	18:50 8.5		F	7	1:30 0.1	7:44 9.1	14:25 4.2	19:15 8.1									
	M	8	6:59 0.6	6:52 8.5	13:25 3.3	18:38 9.0		Th	8	1:55 0.4	8:08 8.6	14:46 4.0	19:40 8.1		S	8	2:15 0.5	8:30 9.0	15:16 3.7	20:10 7.7									
	Tu	9	1:42 0.7	7:40 8.3	14:10 3.6	19:22 8.6	☾	F	9	2:43 0.8	8:58 8.6	15:40 4.0	20:35 7.7	☾	S	9	3:03 1.1	9:20 8.9	16:08 3.3	21:11 7.4									
	W	10	2:27 0.8	8:30 8.0	15:00 3.9	20:09 8.3		S	10	3:32 1.2	9:50 8.5	16:38 3.8	21:35 7.4		M	10	3:54 1.8	10:09 8.9	17:00 2.9	22:20 7.4									
N	Th	11	3:13 1.1	9:25 7.9	15:55 4.2	21:01 7.9		S	11	4:26 1.6	10:45 8.5	17:30 3.5	22:42 7.3	E	Tu	11	4:50 2.4	11:00 8.8	17:51 2.3	23:30 7.4									
	F	12	4:05 1.4	10:23 7.8	16:55 4.2	21:58 7.6		M	12	5:26 2.0	11:38 8.5	18:25 3.0	23:50 7.5		W	12	5:50 8.0	11:46 8.8	18:46 1.7	...									
	S	13	5:02 1.6	11:22 7.8	17:56 4.1	23:03 7.6	E	Tu	13	6:27 2.4	12:27 8.6	19:18 2.3	...		Th	13	6:35 7.6	6:50 3.5	12:31 8.9	19:38 1.0									
	S	14	6:02 1.7	12:17 8.0	18:53 3.7	...		W	14	6:54 7.9	7:27 2.6	13:12 8.7	20:07 1.7		F	14	1:38 7.8	7:52 3.7	13:17 9.2	20:29 0.2									
	M	15	6:10 7.7	7:03 1.8	13:07 8.3	19:47 3.2		Th	15	1:54 8.3	8:25 2.8	13:55 9.0	20:55 0.8	P	S	15	2:35 8.2	8:51 3.9	14:02 9.4	21:16 -0.5									
E	Tu	16	1:11 8.0	8:01 1.9	13:52 8.6	20:36 2.5	●	F	16	2:49 8.7	9:20 3.0	14:36 9.2	21:40 0.1	●	S	16	3:30 8.4	9:48 4.0	14:48 9.5	22:05 -1.0									
	W	17	2:08 8.5	8:55 1.9	14:35 8.9	21:21 1.8	P	S	17	3:41 9.1	10:10 3.2	15:19 9.4	22:27 -0.5	S	M	17	4:19 8.6	10:36 4.1	15:35 9.6	22:52 -1.2									
	Th	18	3:02 9.0	9:46 1.9	15:16 9.0	22:05 1.0		S	18	4:30 9.3	11:01 3.4	16:02 9.6	23:10 -0.9		Tu	18	5:08 8.7	11:25 4.0	16:21 9.6	23:38 -1.2									
	F	19	3:53 9.4	10:33 2.1	15:55 9.2	22:48 0.4		M	19	5:20 9.3	11:47 3.6	16:47 9.5	23:55 -1.0		W	19	5:52 8.8	12:14 3.9	17:09 9.4	...									
	S	20	4:43 9.5	11:20 2.4	16:36 9.4	23:32 -0.1		Tu	20	6:08 9.3	12:35 3.8	17:30 9.3	...		Th	20	6:24 -0.9	6:35 8.9	13:02 3.7	18:00 9.1									
P	S	21	5:32 9.5	12:07 2.8	17:17 9.4	...		W	21	6:41 -0.9	6:55 9.1	13:22 3.8	18:20 9.1		F	21	1:10 -0.4	7:20 9.1	13:53 3.5	18:51 8.6									
	M	22	6:17 -0.4	6:22 9.3	12:54 3.2	18:00 9.3		Th	22	1:30 -0.5	7:43 8.9	14:14 3.8	19:10 8.7	☽	S	22	1:55 0.3	8:02 9.0	14:45 3.2	19:47 8.1									
	Tu	23	1:03 -0.4	7:12 9.1	13:42 3.5	18:45 9.1	☽	F	23	2:18 0.1	8:34 8.8	15:08 3.7	20:07 8.2	E	S	23	2:43 1.1	8:49 9.0	15:38 2.8	20:47 7.6									
	W	24	1:51 -0.2	8:03 8.7	14:32 3.8	19:34 8.9		S	24	3:11 0.8	9:22 8.6	16:04 3.5	21:08 7.7		M	24	3:30 1.9	9:33 9.0	16:29 2.5	21:52 7.2									
	Th	25	2:42 0.1	8:57 8.3	15:26 4.0	20:28 8.4		S	25	4:01 1.5	10:15 8.5	17:00 3.1	22:18 7.4		Tu	25	4:20 2.7	10:21 8.9	17:25 2.1	23:00 6.9									
D	F	26	3:36 0.6	9:52 8.2	16:23 4.0	21:28 8.0	E	M	26	4:57 2.3	11:04 8.5	17:55 2.6	23:26 7.3		W	26	5:12 3.4	11:07 8.9	18:20 1.6	...									
	S	27	4:33 1.2	10:50 8.0	17:23 3.7	22:37 7.8		Tu	27	5:55 2.8	11:50 8.6	18:51 2.0	...		Th	27	6:07 6.8	6:16 3.9	11:53 8.9	19:14 1.0									
	S	28	5:33 1.7	11:43 8.1	18:21 3.3	23:47 7.6		W	28	6:33 7.3	6:54 3.3	12:35 8.7	19:45 1.4		F	28	1:09 6.9	7:18 4.2	12:40 9.0	20:05 0.6									
	M	29	6:34 2.1	12:33 8.2	19:18 2.8	...		Th	29	1:32 7.4	7:50 3.5	13:20 9.0	20:33 0.8	A	S	29	2:05 7.1	8:16 4.3	13:26 9.1	20:51 0.2									
	Tu	30	6:52 7.9	7:33 2.4	13:17 8.5	20:12 2.1		F	30	2:26 7.7	8:45 3.7	14:00 9.2	21:19 0.3		S	30	2:56 7.5	9:10 4.4	14:12 9.2	21:35 -0.1									
E	W	31	1:51 8.1	8:27 2.6	14:00 8.7	21:00 1.4							○	M	31	3:43 7.9	10:01 4.3	14:58 9.2	22:18 -0.4										

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 5.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Taku Mean Local Civil, for the meridian 117° 52' E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☽, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

Moon.						Moon.		Da					
						W							
A	M	I	0:00	4:14	11:57	16:40	D	Th	I	0:39	5:20	12:58	17:40
	Tu	2	-0.2	6.5	1.4	8.2		F	2	1.0	6.6	2.0	6.8
N	W	3	0:40	5:06	12:44	17:28	N	S	3	1:14	6:17	13:55	18:34
	Th	4	0.4	6.2	1.9	7.4		S	3	1.6	6.4	2.5	6.0
O	F	5	1:17	6:04	13:35	18:25	O	S	4	1:48	7:27	14:34	19:45
	S	6	1.0	5.9	2.3	6.6		S	4	2.1	6.3	2.8	5.6
C	M	7	2:02	7:17	14:30	19:35	C	M	5	2:25	8:41	15:13	21:04
	Tu	8	1.5	5.9	2.7	5.9		M	5	2.6	6.4	2.8	5.3
P	S	9	2:52	8:35	15:43	20:47	P	Tu	6	3:47	10:33	18:43	22:54
	S	7	2.0	6.1	2.9	5.6		Tu	6	2.5	7.4	1.5	5.9
S	M	8	4:06	9:36	17:09	21:42	S	W	7	6:45	11:55	19:28	23:40
	Tu	9	2.3	6.5	2.6	5.7		W	7	6:45	11:55	19:28	23:40
E	W	10	5:20	10:20	18:15	22:32	E	Th	8	7:31	12:05	20:10	23:40
	Th	11	2.8	7.1	1.9	5.9		Th	8	1.7	8.9	0.2	...
A	M	12	6:21	11:02	19:08	23:16	A	F	9	8:24	8:11	12:45	...
	Tu	9	2.1	7.8	1.8	6.8		F	9	6:09	1:2	9.5	-0.8
N	W	10	7:10	11:42	19:49	...	N	S	10	1:05	8:51	13:28	21:26
	Th	11	1.8	8.5	0.7	...		S	10	7.4	0.9	9.8	-0.6
O	F	12	8:21	13:02	21:10	...	O	M	12	1:46	9:30	14:08	22:02
	S	13	7.0	1.8	9.6	-0.1		M	12	7.8	0.7	10.1	-0.6
C	M	13	1:20	9:10	18:13	21:49	C	Tu	13	2:27	10:06	14:44	22:40
	W	14	7.2	1.8	9.9	-0.4		Tu	13	8:10	10:48	15:30	23:16
P	S	14	2:01	9:46	14:25	22:26	P	W	14	8.2	0.6	9.6	-0.2
	M	15	7.4	1.2	10.0	-0.4		W	14	3:30	11:26	16:14	23:54
S	Tu	16	2:45	10:27	15:06	23:06	S	Th	15	8.1	0.7	8.9	0.3
	W	17	7.5	1.2	9.8	-0.8		Th	15	4:35	12:09	17:00	...
E	Th	18	3:28	11:07	16:50	23:42	E	F	16	7.8	1.0	7.9	...
	Tu	16	7.4	1.2	9.4	0.0		F	16	0:32	5:30	12:53	17:53
C	W	17	4:12	11:47	16:38	...	C	S	17	0.9	7.4	1.4	7.0
	Th	18	7.2	1.3	8.8	...		S	17	1:08	6:27	13:45	18:58
P	M	18	5:01	5:03	12:28	17:28	P	M	19	1.5	7.1	1.9	6.1
	Tu	19	0.4	6.9	1.6	7.9		M	19	1:52	7:43	15:02	20:22
S	W	19	1:00	6:00	13:09	18:26	S	W	20	2.0	6.9	2.1	5.6
	Th	20	0.9	6.8	1.9	7.1		W	20	2:57	9:08	16:52	21:40
A	F	20	1:39	7:06	14:02	19:36	A	Th	21	2.4	7.0	1.8	5.5
	S	21	1.4	6.7	2.2	6.4		Th	21	4:56	10:13	18:11	23:35
N	M	22	2:27	8:26	15:33	20:57	N	W	22	2.4	7.5	1.2	5.7
	Tu	23	1.8	6.8	2.3	6.1		W	22	6:15	11:06	19:06	23:25
O	W	24	3:50	9:36	17:15	21:56	O	Th	23	2.0	8.1	0.5	6.1
	Th	25	2.1	7.8	1.9	6.1		Th	23	7:09	11:51	19:50	...
C	F	26	5:23	10:30	18:28	22:50	C	S	24	1.4	8.4	-0.1	...
	Tu	23	6.31	11:20	19:20	23:38		S	24	0:08	7:55	12:32	20:30
P	W	24	1.8	8.6	0.4	6.5	P	M	26	6.6	0.9	9.0	-0.6
	Th	25	7:24	12:05	20:07	...		M	26	0:40	8:35	13:12	21:08
S	M	27	0:21	8:10	12:48	20:48	S	W	27	7.1	0.3	9.2	-0.7
	Tu	28	5.9	1.0	9.6	-0.7		W	27	1:27	9:15	13:50	21:45
E	F	28	1:01	8:52	13:30	21:30	E	Th	29	7.6	0.3	9.3	-0.7
	S	29	7.1	0.7	9.8	-0.9		Th	29	2:06	9:55	14:27	22:20
A	M	30	1:45	9:38	14:10	22:10	A	W	28	2.8	0.3	9.2	-0.5
	Tu	31	7.3	0.6	9.8	-0.9		W	28	2:48	10:33	15:08	22:56
N	W	31	2:25	10:14	14:49	22:47	N	Th	29	3:30	11:12	15:40	23:29
	Th	30	7.4	0.6	9.5	-0.7		Th	29	7.9	0.7	8.3	0.6
O	M	31	3:06	10:55	15:30	23:24	O	F	30	...	...	...	...
	Tu	30	7.4	0.7	9.1	-0.2		F	30	...	...	...	...
C	F	31	3:50	11:32	16:09	...	C	S	31	4:11	...	...	...
	W	31	7.2	1.0	8.4	...		S	31	8.1	1.4	6.8	...
P	S	31	0:00	4:31	12:13	16:51	P	Th	30	...	...	...	...
	Th	30	0.3	7.0	1.5	7.7		Th	30	...	...	...	...

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 4.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Shanghai Mean Local Civil, for the meridian 121° 30' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
N D	S	1	0:04 1.8	4:55 7.5	12:45 1.7	17:14 6.0	D	Tu	1	0:17 2.4	5:19 7.5	13:10 1.6	17:45 5.5	E	F	1	1:30 2.6	7:03 6.9	14:23 1.5	19:58 5.8												
	M	2	0:30 2.3	5:50 7.0	13:23 2.1	18:15 5.4		W	2	0:52 2.8	6:20 6.9	13:57 1.8	19:07 5.2		S	2	2:17 2.7	8:20 6.8	15:28 1.6	21:10 6.4												
	Tu	3	1:08 2.9	6:57 6.5	14:22 2.3	19:40 5.0		Th	3	1:31 3.0	7:40 6.7	15:08 1.8	20:36 5.5		S	3	3:54 2.5	9:27 6.9	16:40 1.5	22:00 7.1												
	W	4	2:16 3.2	8:20 6.5	16:05 2.2	21:08 5.2		F	4	3:06 3.0	8:59 6.8	16:30 1.5	21:40 6.0		M	4	5:22 1.9	10:20 7.3	17:48 1.2	22:50 7.9												
	Th	5	4:08 3.0	9:35 6.9	17:27 1.7	22:10 5.8		S	5	4:51 2.5	10:01 7.3	17:39 1.2	22:30 6.9		Tu	5	6:30 1.1	11:06 7.5	18:44 0.9	23:32 8.7												
E C	F	6	5:40 2.4	10:30 7.5	18:25 1.0	22:58 6.6	P	S	6	6:02 1.7	10:50 7.8	18:30 0.8	23:15 7.7	C	W	6	7:25 0.4	11:51 7.7	19:32 0.7	24:00 0.0												
	S	7	6:37 1.6	11:18 8.3	19:10 0.4	23:43 7.4		M	7	6:58 1.0	11:35 8.2	19:18 0.4	23:58 8.5		Th	7	0:16 9.4	8:12 -0.3	12:35 7.7	20:16 0.5												
	S	8	7:25 0.9	12:04 8.8	19:52 -0.1	24:00 0.0		Tu	8	7:43 0.3	12:17 8.5	20:00 0.1	24:00 0.0		S	8	1:00 9.9	8:56 -0.7	13:17 7.7	21:02 0.3												
	M	9	8:23 8.2	8:07 0.2	12:44 9.1	20:30 -0.3		W	9	8:40 9.2	8:27 -0.4	13:00 8.5	20:40 0.1		S	9	1:40 10.1	9:48 -1.0	14:00 7.5	21:47 0.4												
	Tu	10	1:03 8.9	8:47 -0.9	13:25 9.2	21:08 -0.5		Th	10	1:20 9.7	9:12 -0.7	13:40 8.4	21:21 0.1		S	10	2:25 10.0	10:28 -1.0	14:45 7.2	22:31 0.5												
P S	W	11	1:44 9.3	9:28 -0.6	14:05 9.1	21:45 -0.3	S	F	11	2:02 10.0	9:56 -0.9	14:21 8.0	22:03 0.1	M	M	11	3:10 9.7	11:13 -0.8	15:30 6.7	23:18 0.8												
	Th	12	2:24 9.5	10:10 -0.7	14:45 8.7	22:27 -0.1		S	12	2:45 9.9	10:41 -0.9	15:01 7.5	22:50 0.5		Tu	12	3:55 9.1	11:58 -0.3	16:17 6.2	24:00 0.0												
	F	13	3:05 9.4	10:55 -0.5	15:26 8.0	23:08 0.4		S	13	3:27 9.5	11:27 -0.5	15:50 6.9	23:33 1.0		W	13	0:02 1.1	4:46 8.3	12:45 0.2	17:15 5.8												
	S	14	3:49 9.2	11:41 -0.1	16:11 7.2	23:49 1.1		M	14	4:17 8.9	12:17 0.0	16:38 6.1	24:00 0.0		Th	14	0:51 1.7	5:40 7.5	13:34 0.6	18:21 5.6												
	S	15	4:35 8.5	12:29 0.5	16:57 6.3	24:00 0.0		Tu	15	0:19 1.5	5:07 8.1	13:08 0.6	17:39 5.6		F	15	1:46 2.1	6:46 6.8	14:23 1.2	19:44 5.7												
C A	M	16	0:35 1.6	5:29 7.8	13:25 1.0	17:59 5.5	C	W	16	1:10 2.0	6:07 7.3	14:05 1.0	18:57 5.3	S	S	16	2:45 2.4	8:03 6.3	15:20 1.5	21:00 6.0												
	Tu	17	1:25 2.2	6:34 7.1	14:27 1.4	19:25 5.1		Th	17	2:15 2.3	7:27 6.7	15:04 1.3	20:38 5.5		S	17	4:00 2.4	9:12 6.1	16:27 1.6	21:52 6.5												
	W	18	2:28 2.6	8:08 6.6	15:45 1.5	21:11 5.2		F	18	3:21 2.4	8:54 6.5	16:15 1.4	21:46 5.9		M	18	5:16 2.1	10:04 6.2	17:32 1.6	22:32 7.0												
	Th	19	4:00 2.5	9:31 6.7	17:06 1.3	22:13 5.7		S	19	4:45 2.2	9:55 6.6	17:22 1.2	22:28 6.4		Tu	19	6:21 1.6	10:42 6.3	18:27 1.4	23:10 7.7												
	F	20	5:25 2.1	10:28 7.1	18:07 0.9	22:55 6.2		S	20	5:55 1.7	10:35 6.8	18:17 1.0	23:03 7.0		W	20	7:11 1.1	11:22 6.4	19:15 1.4	23:48 8.2												
E N	S	21	6:27 1.4	11:09 7.3	18:55 0.5	23:32 6.8	A	M	21	6:48 1.1	11:04 6.9	19:00 0.8	23:38 7.6	N	Th	21	7:55 0.6	12:00 6.6	19:55 1.2	24:00 0.0												
	S	22	7:15 0.7	11:48 7.6	19:35 0.2	24:00 0.0		Tu	22	7:33 0.7	11:51 7.1	19:44 0.8	24:00 0.0		F	22	0:28 8.7	8:35 0.2	12:41 6.8	20:36 1.3												
	M	23	0:07 7.5	7:57 0.3	12:22 8.8	20:13 0.0		W	23	0:15 8.2	8:15 0.3	12:28 7.2	20:20 0.7		S	23	1:05 9.0	9:16 0.0	13:19 6.9	21:15 1.3												
	Tu	24	0:42 8.0	8:35 0.1	12:59 7.9	20:50 0.2		Th	24	0:50 8.7	8:55 0.1	13:05 7.3	21:00 0.7		S	24	1:45 9.3	9:55 -0.1	14:00 7.0	21:54 1.2												
	W	25	1:17 8.5	9:15 -0.1	13:31 7.9	21:24 0.3		F	25	1:28 9.0	9:33 0.0	13:42 7.3	21:35 1.0		M	25	2:25 9.5	10:35 -0.2	14:43 6.9	22:34 1.3												
N	Th	26	1:52 8.8	9:53 0.0	14:08 7.7	22:00 0.6	N	S	26	2:04 9.2	10:12 0.1	14:20 7.1	22:14 1.4	W	Tu	26	3:05 9.3	11:14 0.0	15:25 6.7	23:14 1.5												
	F	27	2:28 8.9	10:30 0.2	14:45 7.5	22:35 1.0		S	27	2:44 9.2	10:52 0.2	15:00 6.9	22:52 1.6		W	27	3:50 9.0	11:52 0.2	16:12 6.5	23:52 1.7												
	S	28	3:06 8.8	11:10 0.5	15:24 7.1	23:10 1.5		M	28	3:23 9.0	11:32 0.4	15:45 6.5	23:30 1.9		Th	28	4:39 8.5	12:32 0.5	17:02 6.3	24:00 0.0												
	S	29	3:46 8.5	11:47 0.9	16:05 6.6	23:47 2.0		Tu	29	4:09 8.6	12:13 0.7	16:30 6.1	23:00 0.0		F	29	0:32 1.9	5:30 7.9	13:10 0.9	18:04 6.1												
	M	30	4:30 8.1	12:28 1.3	16:50 6.0	24:00 0.0		W	30	0:10 2.1	4:56 8.0	12:56 1.0	17:25 5.7		S	30	1:15 2.2	6:29 7.2	13:49 1.2	19:15 6.3												
							D	Th	31	0:51 2.5	5:55 7.4	13:36 1.8	18:36 5.5																			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 4.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Shanghai Mean Local Civil, for the meridian 121° 30' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.								
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
P	S	1	1:52 2.3	7:40 6.7	14:34 1.5	20:28 6.6	P	W	1	4:22 2.0	9:28 6.0	16:23 2.1	22:01 7.7	O	S	1	6:37 0.7	11:00 6.1	18:40 1.3	23:27 8.4
	M	2	8:06 2.4	8:52 6.5	15:32 1.7	21:30 7.2	S	Th	2	5:52 1.4	10:22 6.1	17:52 1.8	22:52 8.3		S	2	7:25 0.0	11:45 6.5	19:30 0.7	23:30 8.4
	Tu	3	4:50 2.0	9:50 6.6	17:00 1.6	22:22 8.0	F	3	6:54 0.7	11:18 6.4	18:54 1.8	23:40 8.9	M		3	0:12 8.8	8:06 -0.5	12:28 7.0	20:14 0.2	
	W	4	6:10 1.3	10:40 6.8	18:12 1.4	23:10 8.7	O	S	4	7:43 0.0	11:58 6.7	19:45 0.9	23:50 9.0		Tu	4	0:51 9.1	8:45 -0.7	13:05 7.5	20:54 -0.1
	Th	5	7:08 0.6	11:30 6.9	19:10 1.2	23:56 9.3	S	5	0:25 9.3	8:25 -0.6	12:42 6.9	20:30 0.4	W		5	1:30 9.1	9:24 -0.8	13:45 7.8	21:35 -0.3	
S	F	6	7:57 -0.1	12:15 7.1	20:00 0.8	24:00 9.4	M	6	1:09 9.6	9:10 -0.9	13:25 7.2	21:12 0.0	Th	6	2:08 9.0	10:00 -0.6	14:24 8.0	22:14 -0.1		
	S	7	0:40 9.7	8:45 -0.8	13:00 7.2	20:45 0.6	Tu	7	1:50 9.6	9:50 -1.0	14:06 7.4	21:55 0.2	F	7	2:45 8.6	10:38 -0.3	15:00 8.0	22:55 0.3		
	S	8	1:24 10.0	9:28 -1.0	13:48 7.2	21:30 0.4	W	8	2:30 9.5	10:29 -0.9	14:48 7.4	22:38 0.2	S	8	3:22 8.2	11:15 0.3	15:44 7.8	23:35 0.7		
	M	9	2:08 9.9	10:10 -1.0	14:26 7.1	22:14 0.3	E	Th	9	3:10 9.0	11:07 -0.5	15:31 7.3	23:20 0.5	S	9	4:00 7.5	11:50 0.9	16:25 7.5	24:25 0.8	
	Tu	10	2:50 9.7	10:54 -0.9	15:10 6.9	23:00 0.5	F	10	3:52 8.5	11:46 0.0	16:14 7.1	23:50 0.7	A	M	10	0:17 1.3	4:40 6.8	12:26 1.5	17:12 7.1	
E	W	11	3:36 9.2	11:34 -0.5	15:57 6.7	23:48 0.8	S	11	0:00 1.0	4:37 7.7	12:24 0.6	17:02 6.7	C	Tu	11	1:00 1.9	5:25 6.0	13:08 2.1	18:05 6.6	
	Th	12	4:21 8.5	12:15 0.0	16:46 6.4	24:00 0.9	C	S	12	0:45 1.5	5:20 6.9	13:05 1.3	17:55 6.6	W	12	1:50 2.4	6:30 5.4	13:38 2.6	19:15 6.3	
	F	13	0:25 1.3	5:09 7.7	13:00 0.5	17:42 6.2	A	M	13	1:31 2.1	6:12 6.1	13:40 1.9	18:58 6.3	N	Th	13	2:50 2.5	7:54 4.9	14:32 8.0	20:40 6.3
	S	14	1:15 1.8	6:00 6.9	13:45 1.1	18:45 6.0	Tu	14	2:24 2.6	7:20 5.5	14:22 2.4	20:15 6.3	F	14	4:30 2.3	9:20 5.1	16:40 2.7	21:48 6.8		
	S	15	2:10 2.2	7:05 6.2	14:26 1.6	20:00 6.1	W	15	3:44 2.6	8:38 5.2	15:42 2.7	21:25 6.6	S	15	5:47 1.8	10:15 5.5	17:55 2.3	22:36 7.5		
A	M	16	3:08 2.6	8:16 5.7	15:25 2.0	21:08 6.4	N	Th	16	5:13 2.3	9:45 5.3	17:18 2.6	22:15 7.1	S	16	6:40 1.1	11:02 6.1	18:47 1.7	23:22 8.2	
	Tu	17	4:30 2.5	9:20 5.6	16:40 2.1	22:00 6.9	F	17	6:21 1.7	10:32 5.6	18:22 2.2	23:00 7.7	M	17	7:22 0.5	11:45 6.8	19:30 1.1	24:25 0.5		
	W	18	5:50 2.0	10:10 5.7	17:52 2.0	22:40 7.5	S	18	7:10 1.0	11:20 6.1	19:11 1.7	23:45 8.4	●	Tu	18	0:05 8.8	8:00 0.0	12:25 7.6	20:10 0.5	
	Th	19	6:46 1.5	10:55 5.9	18:47 1.7	23:24 8.0	S	19	7:50 0.4	12:03 6.6	19:55 1.2	23:50 8.9	E	W	19	0:45 9.2	8:38 -0.4	13:05 8.2	20:48 0.1	
	F	20	7:30 0.9	11:37 6.2	19:35 1.6	24:00 9.1	●	M	20	0:25 8.9	8:29 -0.1	12:45 7.1	20:34 0.9	Th	20	1:25 9.5	9:14 -0.5	13:44 8.7	21:27 -0.2	
D	S	21	0:05 8.6	8:14 0.4	12:20 6.5	20:15 1.8	Tu	21	1:05 9.4	9:07 -0.5	13:25 7.5	21:10 0.6	F	21	2:04 9.4	9:50 -0.4	14:24 9.0	22:05 -0.2		
	S	22	0:45 9.1	8:55 -0.1	13:01 6.9	20:55 1.2	W	22	1:46 9.7	9:44 -0.6	14:05 7.9	21:50 0.3	P	S	22	2:45 9.1	10:28 -0.1	15:04 9.0	22:47 -0.1	
	M	23	1:30 9.5	9:33 0.3	13:48 7.1	21:32 0.9	E	Th	23	2:28 9.6	10:20 -0.5	14:42 8.1	22:30 0.2	S	23	3:25 8.5	11:06 0.4	15:48 8.7	23:34 0.2	
	Tu	24	2:05 9.7	10:10 -0.4	14:24 7.2	22:13 0.9	F	24	3:10 9.4	10:58 -0.3	15:30 8.1	23:09 0.4	M	24	4:08 7.7	11:46 0.9	16:34 8.3	24:25 0.7		
	W	25	2:50 9.6	10:50 -0.4	15:05 7.8	22:54 0.9	S	25	3:50 8.8	11:35 0.2	16:12 7.9	23:48 0.7	D	Tu	25	0:21 0.7	4:55 6.8	12:30 1.4	17:25 7.7	
E	Th	26	3:30 9.3	11:28 -0.1	15:52 7.3	23:32 1.0	S	26	4:35 8.1	12:12 0.7	17:00 7.6	24:30 0.9	S	W	26	1:15 1.2	5:52 5.9	13:16 2.1	18:28 7.1	
	F	27	4:15 8.8	12:06 0.2	16:40 7.0	24:00 1.1	P	M	27	0:35 1.2	5:25 7.1	12:50 1.3	17:56 7.2	Th	27	2:16 1.6	7:15 5.3	14:15 2.5	19:58 6.8	
	S	28	0:12 1.3	5:04 8.1	12:42 0.7	17:32 6.9	Tu	28	1:24 1.6	6:24 6.3	13:32 1.8	19:04 7.0	F	28	3:42 1.6	8:58 5.2	15:50 2.5	21:27 6.9		
	S	29	0:50 1.6	5:57 7.3	13:15 1.2	18:34 6.8	W	29	2:27 1.9	7:42 5.6	14:42 2.2	20:30 6.9	S	29	5:10 1.3	10:08 5.5	17:20 2.1	22:27 7.4		
	M	30	1:36 2.0	7:00 6.6	13:55 1.6	19:48 6.8	S	Th	30	4:07 1.9	9:08 5.5	16:09 2.4	21:44 7.3	S	30	6:13 0.8	10:53 6.1	18:24 1.3	23:12 7.9	
	Tu	31	2:38 2.2	8:17 6.1	14:48 2.0	21:00 7.1	F	31	5:36 1.4	10:10 5.7	17:38 2.0	22:39 7.9								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 4.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Shanghai Mean Local Civil, for the meridian 121° 30' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.), and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



JANUARY.										MARCH.												
Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.								
W.	Mo.									W.	Mo.											
D	A	M	1	4:15 13.2	10:26 0.7	16:44 14.2	22:56 1.9	D	A	Th	1	5:20 12.6	11:23 2.3	17:41 13.0	23:55 1.3	A	Th	1	4:06 13.6	10:12 1.3	16:23 13.7	22:37 1.0
		Tu	2	5:10 12.7	11:17 1.6	17:33 13.5	23:50 2.1			F	2	4:47 13.1	10:52 2.2	17:02 12.9	23:19 1.5							
		W	3	6:00 12.1	12:08 2.5	18:22 12.8				S	3	5:32 12.5	11:35 3.0	17:46 12.2								
A	N	Th	4	6:39 2.3	6:56 11.6	13:00 8.3	19:15 12.4	A	N	S	4	1:40 2.4	8:08 11.3	14:10 4.3	20:20 11.5	N	M	5	6:56 2.4	7:24 11.6	13:27 4.3	19:38 11.1
		F	5	1:35 2.4	7:57 11.3	14:00 8.7	20:10 12.0			Tu	6	1:56 2.5	8:30 11.5	14:38 4.5	20:43 11.2							
		S	6	2:30 2.4	8:57 11.3	15:00 4.0	21:07 11.9			W	7	3:00 2.4	9:35 11.9	15:45 4.1	21:49 11.6							
N	O	S	7	3:23 2.2	9:55 11.6	15:59 4.0	22:02 12.1	N	O	Th	8	5:23 0.7	11:55 13.5	18:01 2.7		O	Th	8	4:00 1.8	10:35 12.6	16:44 3.3	22:47 12.4
		Tu	9	5:08 1.0	11:34 12.9	17:40 8.3	23:40 12.8			F	9	4:57 1.1	11:27 13.4	17:35 2.3	23:38 13.3							
		W	10	5:49 0.4	12:19 13.7	18:25 2.7				S	10	5:50 0.3	12:12 14.3	18:20 1.3								
O	E	Th	11	6:22 13.1	6:33 -0.2	13:00 14.4	19:06 2.2	O	E	S	11	1:30 14.4	7:42 -0.9	14:02 15.5	20:08 0.5	E	M	12	1:12 15.0	7:23 -0.3	13:57 15.6	19:44 -0.5
		F	12	1:05 13.5	7:17 -0.7	13:42 14.9	19:48 1.8			M	12	2:15 14.7	8:27 -1.0	14:43 15.6	0.0							
		S	13	1:45 13.7	8:00 -0.9	14:24 15.3	20:30 1.4			Tu	13	3:00 14.8	9:18 -0.7	15:24 15.6	21:35 -0.2							
E	C	S	14	2:30 13.9	8:44 -0.8	15:07 15.3	21:10 1.1	E	C	W	14	3:45 14.8	9:55 -0.1	16:09 15.0	22:20 -0.1	C	W	14	2:39 15.8	8:50 -0.3	15:01 15.6	21:10 -0.9
		M	15	3:13 13.9	9:30 -0.5	15:50 15.2	21:56 0.9			Th	15	4:30 14.5	10:45 0.5	16:54 14.4	23:04 0.2							
		Tu	16	4:00 13.8	10:15 0.1	16:34 14.8	22:45 0.8			F	16	5:22 13.9	11:33 1.5	17:43 13.6	23:58 0.6							
C	P	W	17	4:54 13.6	11:06 0.9	17:20 14.1	23:32 0.9	C	P	S	17	6:20 13.2	12:27 2.5	18:36 12.9		P	S	17	5:02 14.4	11:10 1.6	17:15 13.5	23:32 0.3
		Th	18	5:42 13.3	11:56 1.6	18:10 13.6				S	18	6:55 1.0	12:56 12.6	19:38 3.3	19:38 12.4							
		F	19	6:25 1.1	12:43 12.9	18:55 2.4	19:06 13.0			M	19	7:00 1.3	13:33 12.3	19:40 3.7	20:43 12.3							
P	S	S	20	1:23 1.2	7:50 12.5	14:00 3.0	20:09 12.7	P	S	Tu	20	3:05 1.3	9:45 12.4	15:51 3.6	21:53 12.5	S	Tu	20	1:35 1.6	8:11 12.3	14:20 3.7	20:25 12.0
		S	21	2:26 1.1	9:00 12.5	15:06 3.8	21:10 12.7			W	21	4:10 1.1	10:50 12.9	16:57 3.1	23:1 13.1							
		M	22	3:28 0.8	10:07 12.8	16:11 3.2	22:12 13.0			Th	22	5:09 0.6	11:42 13.5	17:50 2.3	23:52 13.6							
S	E	Tu	23	4:29 0.3	11:07 13.4	17:12 2.8	23:10 13.5	S	E	F	23	6:01 0.1	12:29 14.2	18:37 1.6		E	F	23	4:50 1.4	11:17 13.2	17:30 2.1	23:37 13.4
		W	24	5:25 -0.2	12:00 14.0	18:05 2.3				S	24	6:42 14.2	6:50 -0.2	13:10 14.7	19:20 1.0							
		Th	25	6:05 14.0	6:17 -0.7	12:47 14.6	18:55 1.7			S	25	1:28 14.5	7:35 -0.4	13:50 15.0	20:00 0.5							
E	A	F	26	6:55 14.3	7:06 -1.0	13:31 15.0	19:39 1.3	E	A	M	26	2:10 14.6	8:16 -0.2	14:29 15.1	20:39 0.3	A	M	26	1:09 14.3	7:15 0.4	13:27 14.5	19:34 0.3
		S	27	1:42 14.5	7:51 -1.0	14:15 15.2	20:22 1.0			Tu	27	2:50 14.4	8:55 0.2	15:08 14.7	21:18 0.3							
		M	28	2:28 14.4	8:37 -0.7	14:54 15.2	21:04 0.8			W	28	3:30 14.2	9:30 0.7	15:45 14.3	21:57 0.5							
A	N	M	29	3:12 14.1	9:19 -0.2	15:33 15.0	21:45 0.9	A	N	Th	29	4:00 14.4	10:00 1.1	16:12 14.0	22:24 0.3	N	Th	29	3:00 14.4	9:05 1.1	15:12 14.0	21:24 0.3
		Tu	30	3:55 13.7	10:03 0.8	16:15 14.4	22:27 1.1			F	30	4:38 14.0	10:42 1.7	16:48 13.4	23:02 0.7							
		W	31	4:30 13.2	10:40 1.5	16:57 13.7	23:10 1.4			S	31	5:17 13.6	11:20 2.3	17:22 12.7	23:43 1.2							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Amoy Mean Local Civil, for the meridian 118° 03' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15-47 is 3.47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.						MAY.						JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.						W.	Mo.						W.	Mo.						
N D	S	1	5:00 13.0	11:02 2.9	17:08 12.0	23:30 1.7	D	Tu	1	5:25 13.1	11:30 3.2	17:30 11.5	23:52 1.9	E	F	1	0:22 2.1	6:47 12.9	13:00 2.6	19:10 11.9		
	M	2	5:50 12.5	11:54 3.5	17:58 11.4			W	2	6:20 12.7	12:25 3.5	18:30 11.3			S	2	1:25 2.4	7:42 12.7	13:57 2.2	20:10 12.3		
	Tu	3	0:20 2.2	6:47 12.1	12:52 4.0	19:00 11.1		Th	3	0:49 2.3	7:18 12.5	13:30 8.5	19:38 11.3		S	3	2:23 2.6	8:40 12.9	14:53 1.7	21:16 12.8		
	W	4	1:20 2.5	7:50 12.0	14:01 4.1	20:09 11.1		F	4	1:53 2.5	8:20 12.4	14:33 8.0	20:45 11.8		M	4	3:29 2.2	9:40 13.3	15:53 0.8	22:18 13.5		
	Th	5	2:25 2.5	8:57 12.1	15:10 3.7	21:18 11.6		S	5	2:58 2.4	9:18 12.7	15:31 2.2	21:45 12.6		Tu	5	4:27 1.9	10:35 13.8	16:47 -0.1	23:12 14.3		
E	F	6	3:30 2.1	9:59 12.7	16:10 2.8	22:20 12.5	E	S	6	3:58 2.0	10:13 13.2	16:25 1.3	22:43 13.6	P	W	6	5:23 1.6	11:25 14.2	17:37 -0.9			
	S	7	4:30 1.5	10:51 13.4	17:02 1.7	23:15 13.5		M	7	4:57 1.3	11:09 14.0	17:18 0.2	23:37 14.7		Th	7	0:05 15.0	6:12 1.3	12:14 14.6	18:25 -1.5		
	S	8	5:25 0.8	11:40 14.1	17:50 0.8			Th	8	5:49 0.7	11:56 14.6	18:05 -0.8			S	8	0:55 15.5	7:00 1.1	13:01 14.8	19:14 -1.9		
	M	9	0:02 14.4	6:14 0.2	12:28 14.8	18:35 -0.2		W	9	0:25 15.5	6:35 0.4	12:40 15.0	18:51 -1.5		S	9	1:42 15.8	7:47 1.0	13:49 14.8	20:02 -1.9		
	Tu	10	0:48 15.2	7:00 -0.3	13:11 15.3	19:20 -1.0		Th	10	1:13 16.0	7:21 0.2	13:25 15.1	19:36 -1.9		S	10	2:30 15.8	8:35 1.0	14:38 14.5	20:50 -1.5		
P	W	11	1:33 15.9	7:45 -0.6	13:54 15.5	20:00 -1.5	S	F	11	2:00 16.1	8:07 0.3	14:10 15.0	20:22 -1.9	C	M	11	3:18 15.5	9:25 1.3	15:28 14.1	21:43 -0.5		
	Th	12	2:19 16.2	8:30 -0.4	14:34 15.3	20:45 -1.6		S	12	2:48 16.0	8:58 0.7	14:55 14.7	21:10 -1.6		Tu	12	4:06 15.1	10:15 1.5	16:20 13.4	22:32 0.1		
	F	13	3:05 16.0	9:13 0.2	15:17 14.9	21:30 -1.4		S	13	3:36 15.6	9:41 1.2	15:43 14.1	22:00 -0.9		W	13	4:56 14.5	11:09 1.9	17:17 12.8	23:28 1.1		
	S	14	3:53 15.5	10:00 0.9	16:04 14.3	22:20 -0.7		M	14	4:27 14.9	10:33 1.7	16:37 13.3	22:51 0.1		Th	14	5:50 13.8	12:02 2.2	18:15 12.3			
	S	15	4:44 14.7	10:50 1.7	16:55 13.4	23:10 0.1		Th	15	5:20 14.2	11:30 2.3	17:35 12.6	23:49 1.1		E	F	15	0:25 2.0	6:40 13.1	12:55 2.4	19:12 11.9	
C	M	16	5:40 13.9	11:46 2.5	17:52 12.6		W	W	16	6:15 13.5	12:30 2.8	18:40 12.0		S	S	16	1:22 2.7	7:35 12.7	13:52 2.4	20:15 11.7		
	Tu	17	0:07 1.0	6:40 13.1	12:49 3.2	18:57 12.0		Th	17	0:51 2.0	7:15 12.9	13:30 8.0	19:45 11.7		S	17	2:22 3.2	8:30 12.5	14:49 2.2	21:17 11.7		
	W	18	1:12 1.8	7:45 12.5	14:00 3.4	20:09 11.8		F	18	1:57 2.6	8:14 12.4	14:29 2.9	20:49 11.8		M	18	3:20 3.4	9:26 12.5	15:42 1.9	22:14 12.0		
	Th	19	2:20 2.3	8:50 12.4	15:06 3.2	21:18 11.9		E	S	19	3:00 2.9	9:12 12.4	15:28 2.4		21:54 12.1	Tu	19	4:15 3.4	10:18 12.6	16:30 1.5	23:01 12.4	
	F	20	3:28 2.4	9:50 12.6	16:07 2.7	22:20 12.3		S	20	4:00 2.8	10:09 12.8	16:20 1.8	22:47 12.6		W	20	5:08 3.3	11:05 12.8	17:15 1.0	23:48 12.9		
E	S	21	4:28 2.2	10:45 12.8	16:57 2.1	23:13 12.9	M	M	21	4:52 2.5	10:58 13.1	17:08 1.3	23:34 13.1	●	Th	21	5:50 3.1	11:50 12.9	18:00 0.5			
	S	22	5:25 1.9	11:35 13.4	17:45 1.3			A	Tu	22	5:38 2.4	11:42 13.4	17:51 0.7			F	22	0:26 13.5	6:30 2.9	12:30 13.0	18:40 0.1	
	●	M	23	0:00 13.6	6:08 1.4	12:18 13.9		18:25 0.6	W	23	0:17 13.5	6:20 2.3	12:21 13.5		18:31 0.3	N	S	23	1:07 14.0	7:11 2.6	13:10 13.1	19:22 -0.2
	Tu	24	0:42 14.1	6:48 1.2	12:55 14.1	19:04 0.2		Th	24	0:53 13.9	6:58 2.2	13:00 13.5	19:10 -0.1		S	24	1:47 14.4	7:50 2.3	13:50 13.1	20:03 -0.3		
	A	W	25	1:19 14.3	7:25 1.2	13:32 14.1		19:40 -0.1	F	25	1:31 14.2	7:35 2.1	13:35 13.4		19:47 -0.2	M	25	2:28 14.6	8:32 2.2	14:30 13.1	20:45 -0.2	
A	Th	26	1:55 14.4	8:00 1.4	14:05 13.9	20:16 -0.1	N	S	26	2:10 14.4	8:13 2.1	14:12 13.2	20:26 -0.1	Tu	26	3:10 14.7	9:15 2.0	15:13 13.0	21:30 0.1			
	F	27	2:33 14.4	8:37 1.6	14:43 13.5	20:52 0.0		S	27	2:50 14.5	8:52 2.2	14:50 12.9	21:05 0.1		W	27	3:54 14.6	10:00 1.9	15:59 12.8	22:15 0.5		
	S	28	3:11 14.3	9:15 2.0	15:15 13.1	21:33 0.3		M	28	3:30 14.3	9:35 2.4	15:30 12.6	21:50 0.4		Th	28	4:40 14.3	10:48 1.9	16:50 12.7	23:05 1.2		
	N	S	29	3:51 14.0	9:55 2.4	15:55 12.6		22:14 0.8	Tu	29	4:15 14.1	10:20 2.5	16:16 12.2		22:36 1.0	D	F	29	5:27 13.8	11:38 1.8	17:45 12.6	23:57 1.8
	M	30	4:36 13.6	10:40 2.8	16:38 12.0	23:00 1.4		W	30	5:04 13.7	11:10 2.7	17:08 11.9	23:27 1.6		E	S	30	6:15 13.4	12:30 1.7	18:40 12.5		
							D	Th	31	5:55 13.3	12:04 2.7	18:08 11.8										

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Amoy Mean Local Civil, for the meridian 118° 03' E.: 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator, A, P, moon in apogee or perigee.

JULY.					AUGUST.						
Mo.	Day of	Time and Height of High and Low Water.				Mo.	Day of	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.				
P	S 1	0:58	7:10	13:24	19:31	P	W 1	2:32	8:39	14:57	21:33
		2.3	13.1	1.5	12.5			3.3	12.7	0.9	12.7
	M 2	10:11	8:09	14:23	20:50		Th 2	3:37	9:40	15:59	22:35
W		2.6	13.0	1.2	12.7	C	F 3	4:40	10:40	16:56	23:32
	Tu 3	3:00	9:08	15:22	21:56			3.0	13.3	0.0	13.3
		2.7	13.1	0.6	13.1	E	S 4	5:36	11:37	17:50	
S	W 4	4:00	10:05	16:20	22:53			2.4	13.8	-0.5	
		2.7	13.4	0.0	13.8		S 5	0:22	6:28	12:30	18:40
	Th 5	4:58	11:00	17:13	23:46	A		14.4	1.8	14.3	-0.8
O		2.4	13.8	-0.6	14.4		M 6	1:08	7:15	13:30	19:30
	F 6	5:54	11:52	18:07				14.9	1.3	14.6	-0.9
		2.0	14.2	-1.2		N	Tu 7	1:51	8:00	14:07	20:17
S	S 7	0:40	6:43	12:44	18:57			15.2	0.9	14.6	-0.8
		14.9	1.7	14.5	-1.5		W 8	2:35	8:45	14:55	21:02
	S 8	1:27	7:31	13:33	19:45	C		15.3	0.6	14.5	-0.3
O		15.3	1.3	14.6	-1.5		Th 9	3:15	9:28	15:40	21:46
	M 9	2:13	8:20	14:22	20:35			15.1	0.6	14.1	0.3
		15.5	1.1	14.5	1.2	A	F 10	3:59	10:14	16:24	22:30
W	Tu 10	2:58	9:07	15:12	21:23			14.6	0.8	13.6	1.2
		15.4	1.1	14.2	-0.6		S 11	4:42	10:55	17:07	23:14
	W 11	3:44	9:55	16:02	22:12	N		14.0	1.1	12.9	2.0
S		15.1	1.1	13.7	0.2		S 12	5:27	11:40	17:58	
	Th 12	4:30	10:42	16:54	23:01			13.8	1.5	12.3	
		14.6	1.3	13.1	1.1	C	M 13	0:00	6:14	12:30	18:50
O	F 13	5:15	11:30	17:42	23:52			2.8	12.5	1.9	11.7
		13.9	1.6	12.6	2.0		Tu 14	0:53	7:05	13:22	19:49
	S 14	6:03	12:19	18:27		A		3.7	11.9	2.3	11.4
W		13.2	1.9	12.0			W 15	1:50	8:00	14:17	20:50
	S 15	0:41	6:54	13:12	19:35			4.2	11.5	2.4	11.3
		2.9	12.7	2.1	11.6	N	Th 16	2:55	9:00	15:15	21:50
S	M 16	1:37	7:47	14:07	20:35			4.4	11.5	2.3	11.6
		3.5	12.3	2.2	11.4		F 17	3:57	10:00	16:10	22:45
	Tu 17	2:35	8:42	15:00	21:34	C		4.2	11.7	1.8	12.3
W		3.9	12.0	2.1	11.5		S 18	4:42	10:55	17:03	23:33
	W 18	3:34	9:39	15:48	22:28			3.7	12.2	1.2	13.1
		4.1	12.0	1.9	11.9	A	S 19	5:41	11:42	17:51	
S	Th 19	4:30	10:30	16:48	23:17			3.0	12.8	0.5	
		3.9	12.2	1.4	12.5		M 20	0:18	6:25	12:28	18:38
	F 20	5:20	11:20	17:29		N		13.9	2.2	13.5	-0.1
O		3.6	12.5	0.8			Tu 21	1:00	7:07	13:12	19:11
	S 21	0:00	6:05	12:04	18:15			14.6	1.4	14.1	-0.5
		13.2	3.1	12.8	0.3	C	W 22	1:41	7:43	13:55	20:06
W	S 22	0:43	6:50	12:48				15.1	0.7	14.5	-0.6
		13.9	2.6	13.1	-0.2		Th 23	2:21	8:30	14:40	20:50
	M 23	1:25	7:30	13:30	19:43	A		15.4	0.2	14.7	-0.5
S		14.4	2.1	13.4	-0.5		F 24	3:03	9:12	15:24	21:34
	Tu 24	2:06	8:12	14:13	20:27			15.4	-0.2	14.8	0.0
		14.8	1.6	13.6	-0.5	N	S 25	3:47	9:58	16:08	22:20
O	W 25	2:48	8:54	14:57	21:10			14.9	-0.1	14.6	0.5
		15.0	1.2	13.8	-0.3		S 26	4:34	10:45	17:00	23:09
	Th 26	3:30	9:36	15:43	21:55	C		14.4	0.1	14.1	1.4
W		15.0	1.0	13.7	0.2		M 27	5:18	11:35	17:53	
	F 27	4:13	10:28	16:32	22:44			13.7	0.5	13.5	
		14.7	0.8	13.7	0.8	A	Tu 28	0:01	6:10	12:28	18:56
S	S 28	4:58	11:10	17:20	23:32			2.3	13.0	0.9	12.9
		14.2	0.8	13.5	1.5		W 29	1:02	7:10	13:29	20:04
	M 29	5:46	12:00	18:18		N		3.1	12.5	1.2	12.5
O		13.7	0.9	13.0			Th 30	2:10	8:15	14:35	21:13
	Tu 30	0:28	6:40	12:57	19:18			3.5	12.3	1.3	12.5
		2.2	13.2	1.0	12.7	C	F 31	3:20	9:23	15:40	22:18
W		1.28	7:37	13:55	20:25			3.5	12.5	1.2	12.8
	Tu 31	2.9	12.8	1.1	12.6						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 7.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Amoy Mean Local Civil, for the meridian 118° 03' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.), and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾☽, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, F, moon in apogee or perigee.





JANUARY.																				
Moon.	Day of—		Time and Height				Moon.	Day of—		Time and Height				Moon.	Day of—		Time and Height			
	W	Mo.	Low Wa					W	Mo.	Low Wa					W	Mo.	Low Wa			
E	M	1	0:00	7:18	14:30	18:58	D	Th	1	0:46	7:25	14:16	20:47	A			1.3	4.1	2.0	...
	Tu	2	0:48	7:58	15:00	20:08		F	2	1:25	8:04	15:04	22:41				0:30	6:25	13:00	19:47
D	W	3	1:20	8:26	15:50	21:54	S	3	2:14	8:43	15:53	...	D	S	3	1:06	6:38	13:40	21:22	
	Th	4	2:07	9:16	16:38	23:24		4	3:00	9:26	16:47	...				2:12	6:30	14:30	23:00	
A	F	5	2:16	10:15	17:26	...	M	5	3:50	10:10	17:48	...	N	M	5	15:32	...	...	...	
	S	6	2:28	10:58	18:08	...		Tu	6	4:38	10:42	18:28		...			0:04	7:30	10:29	16:50
N	S	7	1:16	8:00	11:43	18:40	W	7	2:08	9:18	12:52	19:28	W	7	0:52	8:35	11:45	18:06		
	M	8	2:00	8:32	12:27	19:14		8	2:44	9:48	13:40	20:11				1:34	8:51	11:45	18:06	
O	Tu	9	2:32	9:32	13:10	19:50	Th	9	3:17	10:15	14:25	20:56	Th	9	2:10	9:10	12:32	19:59		
	W	10	3:05	10:37	13:48	20:28		10	3:56	10:42	15:10	21:39				3:47	9:27	14:18	20:45	
C	Th	11	3:41	10:40	14:32	21:07	S	11	4:32	11:11	15:55	22:21	S	11	3:24	9:53	14:52	21:30		
	F	12	4:22	11:15	15:13	21:49		12	5:10	11:40	16:42	23:06				4:00	10:22	15:50	...	
P	S	13	5:00	11:50	15:57	22:30	E	Tu	13	5:47	12:12	17:34	23:51	P	Tu	13	4:40	10:51	16:36	23:00
	Th	14	5:40	12:27	16:46	23:12		14	6:25	12:45	18:23	...				5:15	11:23	17:28	23:49	
C	M	15	6:22	13:05	17:38	23:59	Th	15	7:02	13:25	19:05	...	Th	15	5:50	12:00	18:17	...		
	Tu	16	7:05	13:39	18:40	...		16	7:43	14:04	19:46	...				6:40	12:40	19:00	...	
P	W	17	7:50	14:15	19:40	...	S	17	8:26	14:48	20:25	...	S	17	7:10	13:30	20:50	...		
	Th	18	8:35	14:56	20:34	...		18	9:05	15:30	21:05	...				8:38	14:25	21:35	...	
S	F	19	9:20	15:30	21:00	23:05	M	19	9:48	16:05	21:57	...	M	19	9:13	15:17	22:40	...		
	S	20	10:02	16:02	21:45	...		20	10:30	16:45	22:45	...				10:00	16:00	23:30	...	
D	Th	21	10:48	16:38	22:30	...	W	21	11:15	17:25	23:40	...	W	21	10:45	16:45	24:20	...		
	M	22	11:30	17:15	23:15	...		22	12:00	18:10	24:30	...				11:30	17:30	25:10	...	
N	Tu	23	12:15	18:00	24:00	...	Th	23	12:45	18:45	25:15	...	Th	23	12:15	18:15	26:00	...		
	W	24	1:00	18:45	24:45	...		24	1:30	19:30	26:00	...				1:00	19:00	26:45	...	
O	Th	25	1:45	19:30	25:30	...	S	25	2:00	20:15	26:45	...	S	25	1:45	19:45	27:30	...		
	F	26	2:30	20:15	26:15	...		26	2:45	21:00	27:30	...				2:30	20:30	28:15	...	
C	S	27	3:15	21:00	27:00	...	E	Tu	27	3:30	21:45	28:15	...	E	Tu	27	3:15	21:15	29:00	...
	S	28	4:00	21:45	27:45	...		28	4:15	22:30	29:00	...				4:00	22:00	29:45	...	
P	M	29	4:45	22:30	28:30	...	W	29	5:00	23:15	30:00	...	W	29	4:45	22:45	30:30	...		
	Tu	30	5:30	23:15	29:15	...		30	5:45	24:00	...	...				5:30	23:30	...	...	
A	W	31	6:15	24:00	30:00	...	Th	31	6:30	24:45	...	...	Th	31	6:15	24:15	...	...		
												...								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Hongkong Mean Local Civil, for the meridian 114° 10' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3 47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



JULY.					AUGUST				
Moon	Day of—		Time and Height of High and Low Water.		Moon	Day of—		Time and Height of High and Low Water.	
	W.	Mo.				W.	Mo.		
S	I		4:22	10:46	15:55	22:44	P	W	1
			3.8	2.1	8.3	1.4			
M	2		5:15	11:56	17:40	23:35	S	Th	2
			4.2	1.6	3.2	1.6			
Tu	3		6:02	12:55	19:28		F	3	
			4.7	0.8	8.2				
P	W	4	0:20	6:45	13:48	20:41	O	S	4
			1.8	5.2	0.2	3.1			
Th	5		1:02	7:30	14:34	21:35	S	5	
			1.8	5.7	-0.4	3.1			
S	F	6	1:45	8:10	15:18	22:21	M	6	
			1.9	6.0	-0.8	3.2			
O	S	7	2:28	8:52	16:03	23:04	Tu	7	
			1.9	6.3	-1.0	3.2			
S	8		3:07	9:35	16:48	23:48	W	8	
			1.9	6.2	-0.9	3.2			
M	9		3:49	10:11	17:33		Th	9	
			2.0	6.0	-0.7				
Tu	10		0:30	4:34	11:00	18:15	F	10	
			3.1	2.2	5.6	-0.3			
W	11		1:15	5:24	11:40	18:57	S	11	
			3.2	2.4	5.1	0.1			
Th	12		2:00	6:25	12:26	19:40	C	S	12
			3.3	2.6	4.4	0.6			
C	F	13	2:38	7:42	13:10	20:20	A	M	13
			3.5	2.7	3.7	1.1			
S	14		3:24	8:28	13:55	21:08	Tu	14	
			3.6	2.7	3.1	1.5			
S	15		4:15	11:00	15:08	22:00	W	15	
			3.9	2.4	2.7	1.8			
A	M	16	5:06	12:13	16:12	22:50	N	Th	16
			4.2	2.0	2.5	1.9			
Tu	17		5:56	13:02	20:00	23:38	F	17	
			4.4	1.5	2.5	2.0			
W	18		6:22	13:44	20:50		S	18	
			4.7	1.1	2.6				
Th	19		0:18	6:55	14:20	21:26	S	19	
			2.1	5.1	0.6	2.7			
N	F	20	1:00	7:30	14:49	22:00	M	20	
			2.1	5.4	0.1	2.8			
●	S	21	1:40	8:05	15:23	22:30	Tu	21	
			3.1	5.7	-0.3	2.9			
S	22		2:16	8:42	16:00	23:03	W	22	
			2.1	6.0	-0.6	3.0			
M	23		2:58	9:22	16:40	23:34	E	Th	23
			2.1	6.0	-0.7	3.0			
Tu	24		3:37	10:03	17:18		F	24	
			2.1	6.0	-0.6				
W	25		0:06	4:23	10:45	17:58	S	25	
			3.0	2.0	5.8	-0.4			
Th	26		0:38	5:12	11:30	18:39	S	26	
			3.2	2.0	5.3	0.0			
E	F	27	1:10	6:08	12:20	19:20	M	27	
			3.4	2.1	4.8	0.5			
S	28		1:45	7:17	13:12	20:04	Tu	28	
			3.6	2.2	4.1	1.1			
D	S	29	2:30	8:46	14:21	20:57	W	29	
			3.8	2.1	3.5	1.6			
M	30		3:22	10:22	15:55	22:07	S	Th	30
			4.0	1.8	3.0	1.9			
Tu	31		4:22	11:47	16:25	23:04	F	31	
			4.3	1.8	2.8	2.1			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Hongkong Mean Local Civil, for the meridian 114° 10' E., 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.							NOVEMBER.							DECEMBER.						
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
FO	M	1	1:28 1.9	7:54 4.9	14:18 0.3	21:07 4.0	○	Th	1	2:45 0.9	9:21 4.0	14:32 1.2	21:02 4.8	○	S	1	3:15 0.4	10:05 2.9	14:15 1.8	20:44 5.4
	Tu	2	2:08 1.5	8:38 4.8	14:48 0.4	21:27 4.2		F	2	3:25 0.6	9:50 3.7	14:58 1.4	21:22 5.0	A	S	2	3:47 0.1	10:50 2.9	14:45 1.9	21:08 5.6
	W	3	2:50 1.2	9:18 4.7	15:16 0.6	21:50 4.4		S	3	3:58 0.5	10:30 3.4	15:20 1.6	21:40 5.2	N	M	3	4:23 0.0	11:26 2.8	15:15 2.0	21:37 5.7
	Th	4	3:30 1.0	9:54 4.4	15:45 0.9	22:06 4.5	A	S	4	4:34 0.4	11:10 3.1	15:45 1.8	22:04 5.3	N	Tu	4	5:05 -0.1	12:10 2.7	15:35 2.2	22:08 5.6
	F	5	4:15 0.8	10:28 4.1	16:07 1.2	22:27 4.6		M	5	5:13 0.4	11:58 2.9	16:08 2.0	22:31 5.2	N	W	5	5:45 -0.2	13:02 2.7	16:00 2.3	22:45 5.5
	S	6	4:49 0.9	11:02 3.7	16:30 1.5	22:50 4.7	N	Tu	6	5:58 0.4	12:55 2.7	16:25 2.1	23:05 5.1		Th	6	6:30 -0.1	14:02 2.7	16:28 2.4	23:25 5.3
	S	7	5:20 0.9	11:37 3.2	16:54 1.7	23:11 4.7		W	7	6:50 0.5	14:15 2.5	19:25 2.3	23:38 4.9		F	7	7:22 0.1	15:15 2.7	17:02 2.6	...
A	M	8	6:08 1.1	12:18 2.8	17:10 2.0	23:43 4.7		Th	8	7:50 0.6	...	...	...		S	8	8:12 4.9	8:14 0.2	16:20 2.9	18:05 2.7
	Tu	9	7:04 1.2	13:14 2.6	17:16 2.2	...	○	F	9	8:28 4.7	8:55 0.6	...	...	○	S	9	1:05 4.6	9:08 0.5	16:35 3.2	20:56 2.8
	W	10	8:21 4.6	8:20 1.3	...	...		S	10	1:28 4.5	10:00 0.6	19:00 3.1	21:33 3.0		M	10	2:11 4.1	10:00 0.8	17:06 3.5	22:35 2.7
	Th	11	1:07 4.5	9:43 1.2	...	...		S	11	2:40 4.2	10:56 0.6	18:38 3.3	23:00 2.7	E	Tu	11	3:30 3.7	10:52 1.0	17:41 3.9	23:45 2.6
	F	12	2:08 4.3	10:50 0.8	...	...		M	12	4:04 4.1	11:40 0.6	18:45 3.7	...		W	12	5:00 3.5	11:45 1.1	18:16 4.4	...
	S	13	3:20 4.3	11:45 0.6	19:53 3.2	23:20 2.7	E	Tu	13	0:00 2.3	5:25 4.0	12:25 0.6	19:06 4.1		Th	13	0:43 1.3	6:30 3.5	12:26 1.2	18:54 4.9
	S	14	4:41 4.4	12:26 0.4	19:48 3.4	...		W	14	0:53 1.5	6:43 4.1	13:08 0.7	19:33 4.6	P	F	14	1:34 0.6	7:50 3.5	13:10 1.4	19:30 5.4
E	M	15	0:20 2.4	6:00 4.6	13:10 0.2	19:59 3.8		Th	15	1:43 0.8	7:46 4.3	13:46 0.8	20:02 5.0	P	S	15	2:20 -0.1	8:55 3.5	13:50 1.6	20:06 5.9
	Tu	16	1:06 1.8	7:06 4.8	13:49 0.1	20:20 4.1	●	F	16	2:30 0.1	8:45 4.2	14:22 1.0	20:35 5.4	●	S	16	3:05 -0.6	9:54 3.4	14:25 1.7	20:47 6.2
	W	17	1:51 1.2	8:01 4.9	14:25 0.2	20:44 4.5	P	S	17	3:12 -0.4	9:41 4.1	14:54 1.3	21:10 5.8	S	M	17	3:52 -1.0	10:50 3.2	15:04 1.8	21:30 6.3
	Th	18	2:36 0.6	8:55 4.9	15:00 0.4	21:14 4.8		S	18	3:55 -0.7	10:40 3.8	15:35 1.6	21:51 6.0		Tu	18	4:42 -1.1	11:40 3.2	15:47 2.0	22:15 6.2
	F	19	3:20 0.2	9:44 4.9	15:35 0.7	21:43 5.1	S	M	19	4:48 -0.8	11:40 3.4	16:10 1.9	22:34 6.0		W	19	5:31 -1.0	12:35 3.1	16:30 2.2	23:00 6.0
	S	20	4:08 -0.1	10:34 4.6	16:10 1.1	22:19 5.2		Tu	20	5:42 -0.7	12:40 3.2	16:50 2.1	23:15 4.8		Th	20	6:22 -0.7	13:25 3.1	17:20 2.4	23:46 5.5
	S	21	4:50 -0.3	11:26 4.1	16:45 1.6	22:55 5.3		W	21	6:40 -0.6	13:50 2.7	17:34 2.6	...		F	21	7:15 -0.3	14:24 3.2	18:20 2.7	...
P	M	22	5:47 -0.2	12:28 3.5	17:22 1.9	23:38 5.3		Th	22	0:05 5.5	7:42 -0.2	15:10 3.0	18:34 2.7	D	S	22	0:37 4.9	8:08 0.2	15:27 3.3	19:46 2.7
	Tu	23	6:48 -0.1	13:45 2.7	18:00 2.4	...	D	F	23	0:58 5.0	8:51 0.1	16:35 3.3	20:00 2.9	E	S	23	1:34 4.3	9:00 0.6	16:14 3.5	21:34 2.7
	W	24	0:25 5.1	8:02 0.2	15:23 3.0	18:58 2.7		S	24	2:00 4.4	9:52 0.4	17:44 3.4	22:10 2.8		M	24	2:40 3.6	9:47 1.2	17:03 3.8	23:07 2.5
	Th	25	1:18 4.8	9:22 0.3	17:23 3.1	20:36 2.9		S	25	3:15 3.9	10:48 0.7	18:21 3.8	23:30 2.6		Tu	25	4:02 3.0	10:35 1.5	17:52 4.2	...
	F	26	2:26 4.5	10:35 0.3	18:32 3.4	22:30 2.8	E	M	26	4:41 3.5	11:31 1.0	18:51 4.0	...		W	26	0:12 2.0	6:04 2.7	11:25 1.6	18:31 4.5
	S	27	3:44 4.2	11:34 0.4	19:12 3.6	23:42 2.7		Tu	27	0:28 2.0	6:15 3.4	12:17 1.3	19:20 4.4		Th	27	1:09 1.5	7:42 2.7	12:04 1.8	19:40 4.7
	S	28	5:20 4.1	12:18 0.5	19:40 3.9	...		W	28	1:16 1.5	7:30 3.3	12:50 1.4	19:44 4.6		F	28	1:54 1.1	8:39 2.7	12:38 1.9	19:26 5.0
E	M	29	0:40 2.2	6:42 4.1	13:02 0.6	20:04 4.1		Th	29	2:00 1.0	8:30 3.3	13:20 1.5	20:05 4.9	A	S	29	2:32 0.7	9:30 2.7	13:11 1.9	19:50 5.3
	Tu	30	1:25 1.7	7:40 4.0	13:35 0.9	20:26 4.3		F	30	2:40 0.7	9:28 3.1	13:48 1.7	20:22 5.2		S	30	3:05 0.3	10:10 2.8	13:45 1.9	20:15 5.6
	W	31	2:05 1.2	8:29 4.0	14:05 1.0	20:45 4.5								○	M	31	3:34 0.0	10:48 2.8	14:16 2.0	20:47 5.8

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Hongkong Mean Local Civil, for the meridian 114° 10' E.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.									
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				
	W.	Mo.						W.	Mo.						W.	Mo.					
E D A	M	1	2:28 6.5	7:55 2.7	14:00 6.9	20:26 0.6	D A	Th	1	2:54 6.7	8:55 2.1	15:08 5.9	21:00 2.2	A D N	Th	1	1:35 7.1	7:36 1.2	13:52 6.8	19:46 1.7	
	Tu	2	3:09 6.3	8:45 2.8	14:50 6.3	21:10 1.8		F	2	3:32 6.4	9:45 2.2	16:00 5.3	21:44 2.8		F	2	2:10 6.9	8:12 1.3	14:32 6.2	20:15 2.3	
	W	3	3:58 6.2	9:45 2.9	15:52 6.7	22:00 2.1		S	3	4:16 6.1	10:42 2.3	17:20 4.8	22:35 3.4		S	3	2:40 6.6	8:55 1.5	15:20 5.5	20:52 2.9	
	Th	4	4:40 6.1	10:52 2.9	17:05 6.2	22:57 2.8		S	4	5:12 5.9	12:02 2.3	19:10 4.8	23:40 3.8		S	4	3:10 6.3	9:44 1.8	16:20 4.9	21:34 3.5	
	F	5	5:32 6.0	12:10 2.7	18:38 6.1	23:00 2.8		M	5	6:18 5.9	13:32 1.8	20:43 5.1	23:50 4.0		M	5	4:05 6.0	10:50 2.0	18:08 4.6	22:38 4.0	
S C N O	S	6	0:00 3.2	6:30 6.1	13:32 2.2	20:02 5.2	N C	Tu	6	1:15 4.0	7:26 6.1	14:40 1.2	21:40 5.5	N C E P	Tu	6	5:20 5.7	12:18 1.9	20:08 4.9	22:50 4.0	
	S	7	1:12 8.5	7:26 6.2	14:28 1.6	21:08 5.5		W	7	2:36 3.9	8:26 6.5	15:20 0.6	22:18 6.0		W	7	0:20 4.2	6:45 5.8	13:55 1.5	21:10 5.4	
	M	8	2:18 3.6	8:18 6.5	15:12 0.9	21:54 5.8		Th	8	3:35 3.6	9:14 7.0	16:00 -0.1	22:50 6.4		Th	8	2:16 4.0	8:00 6.2	14:58 0.9	21:48 6.0	
	Tu	9	3:00 3.5	8:58 6.8	15:48 0.3	22:30 6.1		F	9	4:05 3.1	9:58 7.5	16:34 -0.6	23:20 6.8		F	9	3:10 3.5	9:00 6.9	15:40 0.3	22:18 6.5	
	W	10	3:45 3.3	9:40 7.2	16:17 -0.3	23:04 6.4		S	10	4:40 2.6	10:40 8.0	17:10 -0.9	23:46 7.0		S	10	3:50 2.8	9:45 7.5	16:15 -0.2	22:50 6.9	
E C P S	Th	11	4:08 3.1	10:12 7.5	16:50 -0.7	23:35 6.6	E P C	S	11	5:10 2.1	11:20 8.3	17:48 -1.0	23:50 6.8	E P C S	S	11	4:25 2.0	10:30 8.0	16:50 -0.4	23:18 7.4	
	F	12	5:00 2.8	10:50 7.9	17:20 -1.0	23:35 6.6		M	12	0:15 7.2	5:50 1.6	12:00 8.4	18:20 -0.8		M	12	4:58 1.3	11:10 8.4	17:24 -0.4	23:44 7.6	
	S	13	0:04 6.8	5:24 2.6	11:30 8.0	18:00 -1.1		Tu	13	0:50 7.4	6:30 1.3	12:44 8.3	19:00 -0.4		Tu	13	5:35 0.7	11:50 8.5	18:04 -0.2	23:18 7.6	
	S	14	0:40 6.9	6:06 2.4	12:05 8.1	18:35 -0.9		W	14	1:24 7.4	7:10 1.1	13:30 7.9	19:40 0.4		W	14	0:15 7.8	6:13 0.4	12:32 8.4	18:38 0.3	
	M	15	1:16 6.9	6:44 2.2	12:58 7.9	19:20 -0.5		Th	15	2:00 7.3	7:58 1.0	14:20 7.3	20:22 1.3		Th	15	0:50 7.7	6:55 0.2	13:18 8.0	19:18 1.1	
E C P S	Tu	16	1:55 7.0	7:30 2.1	13:40 7.6	20:04 0.1	C S	F	16	2:40 6.9	8:50 1.2	15:18 6.6	21:14 2.3	C S M Tu	F	16	1:25 7.5	7:38 0.2	14:08 7.3	19:55 1.9	
	W	17	2:35 6.9	8:18 2.1	14:32 7.0	20:50 0.9		S	17	3:30 6.5	9:50 1.4	16:35 5.7	22:05 3.2		S	17	2:04 7.1	8:25 0.5	15:05 6.5	20:40 2.8	
	Th	18	3:22 6.7	9:20 2.1	15:35 6.3	21:44 1.8		S	18	4:28 6.2	11:14 1.5	18:38 5.1	23:30 3.9		S	18	2:55 6.8	9:25 0.9	16:26 5.6	21:35 3.6	
	F	19	4:15 6.8	10:24 2.0	16:58 5.8	22:48 2.7		M	19	5:50 6.1	13:15 1.3	20:34 5.5	23:50 4.1		M	19	3:52 6.3	10:52 1.3	18:30 5.3	22:14 4.1	
	S	20	5:17 6.1	11:45 1.9	18:48 5.5	23:50 2.7		Tu	20	1:55 4.2	7:15 6.2	14:45 0.6	21:38 6.1		Tu	20	5:20 5.9	13:00 1.3	20:18 5.6	22:50 4.1	
S ●	S	21	0:15 3.4	6:28 6.2	13:30 1.4	20:35 5.7	●	W	21	3:15 3.7	8:33 6.7	15:42 0.0	22:24 6.6	●	W	21	1:55 4.1	7:02 6.1	14:28 0.8	21:17 6.1	
	M	22	2:00 3.7	7:40 6.5	14:50 0.6	21:45 6.2		Th	22	4:18 3.2	9:30 7.2	16:28 -0.5	23:00 6.9		Th	22	3:05 3.5	8:30 6.5	15:28 0.4	21:58 6.6	
	Tu	23	3:15 3.6	8:40 6.9	15:45 -0.2	22:35 6.6		F	23	4:44 2.7	10:18 7.6	17:00 -0.7	23:30 7.1		F	23	3:48 2.8	9:28 7.0	16:08 0.1	22:32 7.1	
	W	24	4:05 3.4	9:34 7.4	16:32 -0.8	23:18 6.9		S	24	5:10 2.3	11:00 8.0	17:32 -0.6	23:58 7.3		S	24	4:22 2.2	10:10 7.5	16:45 0.1	23:00 7.3	
	Th	25	4:45 3.1	10:22 7.8	17:12 -1.1	23:52 7.0		S	25	5:40 1.9	11:38 8.1	18:00 -0.4	23:50 7.3		S	25	4:58 1.6	10:50 7.8	17:12 0.2	23:23 7.4	
E	F	26	5:20 2.8	11:04 8.0	17:48 -1.1	23:50 7.0	E	M	26	0:22 7.3	6:05 1.5	12:10 7.9	18:28 0.1	A	M	26	5:18 1.2	11:28 7.9	17:34 0.5	23:44 7.5	
	S	27	0:25 7.0	5:50 2.6	11:44 8.1	18:20 -0.9		Tu	27	0:40 7.3	6:35 1.3	12:45 7.7	18:54 0.6		Tu	27	5:42 0.9	11:55 7.8	18:00 0.8	23:50 7.5	
	S	28	0:55 7.0	6:24 2.3	12:22 7.9	18:50 -0.5		W	28	1:08 7.3	7:00 1.2	13:20 7.2	19:18 1.1		W	28	0:03 7.4	6:08 0.6	12:26 7.6	18:20 1.2	
	M	29	1:20 7.0	6:52 2.1	13:00 7.6	19:18 0.0										Th	29	0:28 7.4	6:37 0.5	12:58 7.2	18:44 1.6
	Tu	30	1:50 6.9	7:30 2.0	13:38 7.1	19:50 0.7										F	30	0:51 7.3	7:05 0.5	13:30 6.8	19:10 2.1
	W	31	2:20 6.8	8:10 2.0	14:20 6.5	20:30 1.5								S	31	1:20 7.1	7:40 0.7	14:08 6.3	19:40 2.5		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 4.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Singapore Mean Local Civil, for the meridian 103° 51' E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of		Time and Height of High and Low Water.				Moon.	Day of		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
A	S	1	1:52 6.8	8:20 0.9	14:54 5.8	20:14 3.1	D	Tu	1	2:00 6.7	8:38 0.7	15:30 5.6	20:44 3.6	E	F	1	3:41 6.1	10:15 1.3	17:13 5.9	22:56 3.3
	M	2	2:30 6.5	9:05 1.2	15:50 5.2	21:00 3.6		W	2	2:50 6.2	9:40 1.1	16:40 5.4	21:50 3.9		S	2	5:04 5.8	11:32 1.8	18:19 6.0	23:00
	Tu	3	3:20 6.0	10:09 1.6	17:17 4.9	22:05 4.1		Th	3	4:00 5.8	10:50 1.5	18:00 5.4	22:25 3.9		S	3	0:20 2.8	6:36 5.8	12:45 2.1	19:16 6.2
	W	4	4:30 5.7	11:28 1.8	19:05 5.1	23:52 4.1		F	4	5:30 5.7	12:10 1.7	19:15 5.7	23:00		M	4	1:30 2.1	7:56 6.2	13:55 2.2	20:08 6.6
	Th	5	6:05 5.7	13:01 1.6	20:22 5.6	23:00		S	5	1:14 3.4	7:05 5.9	13:30 1.6	20:12 6.2		Tu	5	2:30 1.2	9:04 6.6	14:54 2.3	20:54 6.9
E	F	6	1:45 3.8	7:32 6.0	14:18 1.2	21:07 6.1	E	S	6	2:08 2.5	8:16 6.4	14:30 1.5	20:52 6.7	P	W	6	3:20 0.4	10:00 7.0	15:42 2.4	21:37 7.4
	S	7	2:48 3.1	8:40 6.7	15:10 0.8	21:44 6.6		M	7	2:55 1.7	9:15 7.0	15:23 1.4	21:30 7.0		Th	7	4:08 -0.3	10:50 7.2	16:24 2.6	22:17 7.7
	S	8	3:28 2.2	9:32 7.3	15:50 0.5	22:11 7.1		Tu	8	3:39 0.9	10:05 7.6	16:06 1.4	22:06 7.4		F	8	4:54 -0.9	11:40 7.2	17:04 2.7	22:56 8.0
	M	9	4:04 1.4	10:16 7.9	16:30 0.4	22:40 7.5		W	9	4:20 0.0	10:50 7.9	16:45 1.6	22:40 7.7		S	9	5:35 -1.2	12:25 7.1	17:42 2.8	23:38 8.0
	Tu	10	4:40 0.6	11:00 8.2	17:08 0.5	23:14 7.7		Th	10	4:58 -0.6	11:35 7.9	17:20 1.9	23:17 7.9		S	10	6:20 -1.2	13:09 6.9	18:22 2.9	23:50
P	W	11	5:17 0.0	11:42 8.4	17:45 0.9	23:45 7.8	S	F	11	5:40 -1.0	12:20 7.7	17:55 2.2	23:54 7.9	M	M	11	0:20 7.9	7:05 -0.9	13:53 6.6	19:06 3.0
	Th	12	5:55 -0.4	12:25 8.2	18:18 1.3	23:00		S	12	6:25 -1.0	13:08 7.1	18:38 2.6	23:00		Tu	12	1:08 7.6	7:50 -0.5	14:44 6.4	19:57 3.2
	F	13	0:20 7.8	6:36 -0.6	13:11 7.7	18:55 1.9		S	13	0:35 7.8	7:10 -0.8	13:58 6.7	19:16 3.0		W	13	2:00 7.1	8:40 0.2	15:35 6.2	20:57 3.2
	S	14	0:52 7.7	7:20 -0.4	14:00 7.0	19:34 2.5		M	14	1:20 7.5	8:00 -0.3	14:55 6.2	20:07 3.4		Th	14	3:00 6.5	9:35 0.9	16:30 6.2	22:10 3.2
	S	15	1:40 7.4	8:12 0.0	15:00 6.2	20:18 3.8	C	Tu	15	2:10 6.9	9:00 0.3	16:00 6.0	21:12 3.7	E	F	15	4:12 6.0	10:34 1.6	17:25 6.1	23:32 2.9
C	M	16	2:28 6.9	9:15 0.5	16:18 5.7	21:19 3.8		W	16	3:15 6.3	10:08 0.9	17:20 5.9	22:48 3.8		S	16	5:35 5.6	11:43 2.2	18:20 6.2	23:00
	Tu	17	3:34 6.3	10:34 1.0	18:05 5.5	23:05 4.1		Th	17	4:40 5.9	11:32 1.4	18:34 6.0	23:00		S	17	0:53 2.6	7:00 5.6	12:52 2.6	19:10 6.2
	W	18	5:00 5.9	12:24 1.8	19:44 5.8	23:00		F	18	0:35 3.4	6:17 5.8	13:00 1.7	19:32 6.2		M	18	2:00 2.0	8:15 5.8	13:55 2.9	19:58 6.5
	Th	19	1:25 3.8	6:44 5.9	13:55 1.2	20:34 6.3	E	S	19	1:50 2.7	7:40 6.0	14:06 1.8	20:18 6.5	A	Tu	19	2:48 1.4	9:10 6.0	14:45 3.0	20:40 6.7
E	F	20	2:35 3.1	8:10 6.3	14:55 1.0	21:15 6.7		S	20	2:44 2.0	8:45 6.4	14:58 1.9	20:56 6.7		W	20	3:30 0.9	10:10 6.2	15:22 3.1	21:14 7.0
	S	21	3:20 2.3	9:12 6.8	15:38 1.0	21:48 7.0		M	21	3:25 1.4	9:35 6.8	15:33 2.0	21:29 6.9		Th	21	4:00 0.4	10:40 6.3	15:55 3.1	21:48 7.1
	S	22	3:55 1.6	9:57 7.2	16:12 1.0	22:17 7.2		Tu	22	3:58 0.9	10:18 6.9	16:06 2.2	22:00 7.2		F	22	4:28 0.0	11:10 6.4	16:24 3.1	22:20 7.4
	M	23	4:25 1.1	10:34 7.4	16:42 1.1	22:40 7.3	O	W	23	4:28 0.4	10:54 6.9	16:32 2.4	22:25 7.3	N	S	23	4:56 -0.4	11:40 6.5	16:54 3.0	22:54 7.6
A	Tu	24	4:50 0.7	11:09 7.5	17:05 1.4	23:04 7.4		Th	24	4:50 0.1	11:26 6.8	16:50 2.5	22:50 7.5		S	24	5:30 -0.6	12:14 6.5	17:26 2.9	23:28 7.7
	W	25	5:14 0.4	11:40 7.4	17:28 1.7	23:28 7.5		F	25	5:18 -0.2	11:55 6.8	17:18 2.6	23:18 7.6		M	25	6:05 -0.7	12:46 6.5	18:02 2.8	23:00
	Th	26	5:38 0.1	12:10 7.2	17:46 2.0	23:50 7.5		S	26	5:46 -0.4	12:28 6.7	17:45 2.7	23:48 7.5		Tu	26	0:05 7.6	6:40 -0.6	13:22 6.7	18:40 2.8
	F	27	6:06 0.0	12:40 7.0	18:10 2.2	23:00	N	S	27	6:25 -0.4	13:00 6.6	18:18 2.8	23:00		W	27	0:45 7.5	7:20 0.4	14:02 6.7	19:25 2.8
N	S	28	0:15 7.3	6:38 0.0	13:15 6.7	18:40 2.5		M	28	0:20 7.4	6:56 -0.4	13:38 6.5	18:54 3.0		Th	28	1:32 7.2	8:00 0.0	14:45 6.6	20:16 2.8
	S	29	0:45 7.3	7:12 0.1	13:50 6.3	19:10 2.9		Tu	29	1:00 7.2	7:35 -0.1	14:20 6.3	19:36 3.2		F	29	2:24 6.8	8:50 0.6	15:24 6.5	21:16 2.7
	M	30	1:20 7.0	7:52 0.3	14:35 6.0	19:54 3.2		W	30	1:43 -6.9	8:20 0.3	15:10 6.1	20:32 3.4		S	30	3:25 6.3	9:46 1.3	16:28 6.3	22:24 2.6
	Th	31	2:35 6.5	9:14 0.8	16:08 5.9	21:35 3.5		Th	31	2:35 6.5	9:14 0.8	16:08 5.9	21:35 3.5							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region and which is 4.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Singapore Mean Local Civil for the meridian 103° 51' E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
P	S 1	4:38 5.9	10:48 2.1	17:25 6.2	23:40 2.3	P	W 1	0:30 1.5	7:45 5.5	12:50 3.7	18:55 6.4	S	1	3:12 0.2	9:58 6.4	15:35 3.3	21:05 7.1
	M 2	6:10 5.8	12:00 2.6	18:26 6.3		S	Th 2	2:09 0.9	9:12 5.9	14:30 3.8	20:05 6.8	S	2	4:00 -0.3	10:36 6.8	16:16 2.8	21:56 7.6
	Tu 8	0:55 1.7	7:42 5.8	13:20 3.0	19:25 6.5	F	3	3:16 0.1	10:08 6.4	15:35 3.6	21:05 7.2	O	M 3	4:42 -0.5	11:08 7.1	16:50 2.3	22:40 8.0
	W 4	2:10 1.0	9:03 6.2	14:30 3.2	20:22 6.9	O	S 4	4:03 -0.5	10:54 6.7	16:20 3.2	21:58 7.6	Tu	4	5:16 -0.5	11:36 7.3	17:18 1.8	23:20 8.1
	Th 5	3:15 0.2	10:08 6.5	15:30 3.2	21:15 7.8	S	5	4:50 -0.9	11:32 6.9	16:58 2.9	22:42 8.0	E	W 5	5:45 -0.3	12:00 7.4	17:48 1.4	23:55 8.0
	S 6	4:05 -0.5	10:57 6.8	16:16 3.2	22:02 7.7	M	6	5:30 -1.0	12:05 7.0	17:34 2.6	23:26 8.1	Th	6	6:12 0.2	12:25 7.4	18:20 1.1	
	S 7	4:51 -1.0	11:40 6.9	16:57 3.1	22:45 8.0	Tu	7	6:04 -0.9	12:35 7.0	18:05 2.2		F	7	6:32 7.8	12:50 0.7	18:48 7.3	24:10 1.0
	S 8	5:34 -1.2	12:20 6.9	17:35 2.9	23:30 8.1	W	8	6:08 8.1	6:37 -0.5	13:05 7.0	18:40 1.9	S	8	1:07 7.3	7:05 1.2	13:18 7.1	19:25 1.0
	M 9	6:15 -1.2	13:00 6.9	18:18 2.8		E	Th 9	6:48 7.8	7:10 0.0	13:34 7.1	19:16 1.8	S	9	1:45 6.8	7:34 1.8	13:45 6.9	20:00 1.2
	Tu 10	6:54 8.0	6:56 -0.9	13:35 6.8	18:58 2.7	F	10	1:29 7.8	7:40 0.7	14:05 6.9	19:59 1.8	A	M 10	2:23 6.2	8:05 2.4	14:20 6.6	20:40 1.4
W 11	1:00 7.7	7:35 -0.4	14:12 6.7	19:40 2.6	S	11	2:10 6.7	8:17 1.4	14:38 6.7	20:40 1.9	C	Tu 11	3:10 5.6	8:35 3.1	15:05 6.3	21:30 1.7	
E	Th 12	1:46 7.2	8:14 0.3	14:50 6.6	20:30 2.5	C	S 12	2:58 6.1	8:51 2.1	15:17 6.4	21:30 2.0	W	12	4:18 5.0	9:20 3.5	15:50 5.9	22:36 1.9
C	F 13	2:38 6.6	8:58 1.1	15:38 6.5	21:28 2.6	A	M 13	3:54 5.5	9:30 2.8	16:00 6.2	22:28 2.1	N	Th 13	5:58 4.7	10:26 4.1	17:00 5.7	
S 14	3:35 6.0	9:45 1.9	16:20 6.4	22:28 2.5	Tu	14	5:10 5.0	10:20 3.4	16:54 6.0	23:46 2.1	F	14	6:05 2.0	7:52 4.9	12:10 4.1	18:27 5.7	
S 15	4:44 5.6	10:32 2.6	17:10 6.2	23:35 2.4	W	15	6:56 4.8	11:20 3.9	18:00 5.9		S	15	1:36 1.6	8:52 5.5	14:04 4.0	19:42 6.1	
A	M 16	6:10 5.8	11:34 3.1	18:08 6.2		N	Th 16	1:16 1.9	8:28 5.0	12:57 4.1	19:10 6.1	S	16	2:40 1.1	9:30 6.1	14:58 3.4	20:40 6.6
Tu 17	1:00 2.1	7:40 5.2	12:50 3.5	19:00 6.2	F	17	2:27 1.4	9:24 5.4	14:20 4.0	20:10 6.4	M	17	3:20 0.6	10:00 6.5	15:32 2.8	21:28 7.2	
W 18	2:12 1.6	8:50 5.4	13:55 3.7	19:52 6.4	S	18	3:13 0.8	10:02 5.9	15:12 3.7	21:00 6.8	●	Tu 18	3:55 0.1	10:26 7.0	16:08 2.0	22:10 7.8	
Th 19	3:02 1.1	9:44 5.6	14:50 3.7	20:38 6.7	S	19	3:50 0.2	10:32 6.2	15:52 3.2	21:45 7.3	E	W 19	4:30 -0.2	10:52 7.3	16:38 1.3	22:50 8.2	
N	F 20	3:36 0.5	10:22 5.9	15:34 3.5	21:22 7.0	●	M 20	4:20 -0.2	11:00 6.6	16:25 2.6	22:24 7.7	Th	20	5:05 -0.2	11:20 7.6	17:14 0.7	23:30 8.4
●	S 21	4:10 0.0	10:56 6.2	16:05 3.3	22:00 7.3	Tu	21	4:55 -0.6	11:26 7.0	16:58 2.1	23:03 8.1	F	21	5:40 0.0	11:52 7.8	17:50 0.8	
S 22	4:40 -0.4	11:25 6.5	16:37 3.0	22:36 7.6	W	22	5:30 -0.7	11:55 7.3	17:32 1.6	23:42 8.2	P	S 22	6:12 8.4	12:25 0.5	18:30 7.7	24:00 0.0	
M 23	5:14 -0.7	11:54 6.7	17:12 2.7	23:15 7.8	E	Th 23	6:02 -0.6	12:26 7.4	18:10 1.2		S	23	6:55 8.0	13:00 1.1	18:00 7.6	19:14 0.0	
Tu 24	5:46 -0.8	12:25 6.8	17:50 2.4	23:54 7.9	F	24	6:25 8.2	13:00 -0.2	18:00 7.4	18:50 0.9	M	24	1:42 7.4	7:30 1.9	13:37 7.3	19:58 0.2	
W 25	6:24 -0.7	12:58 7.1	18:26 2.2		S	25	1:06 7.9	7:20 0.4	13:35 7.3	19:34 0.9	D	Tu 25	2:25 6.6	8:15 2.7	14:22 6.9	20:57 0.6	
Th 26	6:36 7.9	7:00 -0.5	13:32 7.1	19:10 1.9	S	26	1:55 7.4	8:00 1.2	14:15 7.0	20:24 1.0	S	W 26	3:47 5.8	9:03 3.5	15:20 6.4	22:10 1.1	
E	F 27	1:25 7.6	7:40 0.1	14:12 7.0	19:58 1.8	D	M 27	2:50 6.8	8:40 2.1	15:00 6.7	21:16 1.1	Th	27	5:35 5.4	10:24 4.1	16:40 6.0	
S 28	2:09 7.2	8:28 0.8	14:52 6.9	20:48 1.8	Tu	28	4:00 5.9	9:32 3.1	15:52 6.3	22:30 1.4	F	28	6:02 1.3	7:40 5.6	13:00 4.1	18:22 6.0	
D	S 29	3:06 6.6	9:14 1.6	15:42 6.6	21:50 1.7	S	W 29	5:40 6.3	10:42 3.8	17:06 6.1		S	29	1:54 0.9	8:45 6.0	14:34 3.6	19:55 6.4
M 30	4:16 6.1	10:10 2.5	16:36 6.3	22:58 1.7	Th	30	6:16 1.3	7:50 5.4	12:46 4.1	18:36 6.2	S	30	2:58 0.5	9:30 6.6	15:23 2.8	21:02 7.0	
Tu 31	5:55 5.5	11:16 3.8	17:40 6.2		F	31	2:06 0.8	9:08 5.9	14:40 3.9	19:58 6.5							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the approximately the datum of soundings on the Admiralty Charts for this region and which is 4.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Singapore Mean Local Civil, for the meridian 103° 51' E. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.





JANUARY.				FEBRUARY.				MARCH.			
Moon.	Day of—	Time and Height of High and Low Water.		Moon.	Day of—	Time and Height of High and Low Water.		Moon.	Day of—	Time and Height of High and Low Water.	
	W. Mo.				W. Mo.				W. Mo.		
F	M 1	10:08	22:50	A	Th 1	8:30	17:30	A	Th 1	7:39	16:05
		1.6	0.1			1.4	0.2			1.1	0.2
D	Tu 2	9:37	22:31		F 2	8:18	17:11	D	F 2	7:10	15:50
		1.6	0.2			1.5	0.1			1.2	0.1
A	W 3	9:22	22:22		S 3	8:14	17:10		S 3	7:08	15:52
		1.6	0.3			1.6	-0.1			1.3	-0.1
	Th 4	9:05	18:58		S 4	8:08	17:17		S 4	6:52	16:00
		1.6	0.2			1.7	-0.2			1.4	-0.2
	F 5	8:54	18:25		M 5	8:10	17:27	N	M 5	6:58	16:02
		1.7	0.7			1.8	-0.3			1.5	-0.2
	S 6	8:53	18:22	N	Tu 6	8:22	17:25		Tu 6	7:18	16:04
		1.7	-0.1			2.0	-0.3			1.7	-0.3
	S 7	8:51	18:32		W 7	8:44	17:39		W 7	7:47	16:18
		1.8	-0.2			2.1	-0.4			1.8	-0.4
	M 8	8:50	18:44		Th 8	9:12	17:56		Th 8	8:21	16:34
		2.0	-0.2			2.1	-0.5			1.9	-0.4
	Tu 9	9:08	18:47		F 9	9:41	18:18		F 9	8:54	16:51
		2.1	-0.3			2.1	-0.4			1.9	-0.3
N	W 10	9:28	19:00		S 10	10:09	18:40		S 10	9:21	17:06
		2.2	-0.5			2.0	-0.3			1.8	-0.1
	Th 11	9:55	19:22		S 11	10:35	19:07	C	S 11	9:56	17:19
		2.2	-0.5			1.8	-0.1			1.6	0.0
	F 12	10:20	19:50		M 12	10:57	19:10	E	M 12	3:58	10:23
		2.2	-0.5			1.6	0.1			0.7	1.4
	S 13	10:46	20:21	E	Tu 13	11:08	19:15	P	Tu 13	4:53	10:48
		2.1	-0.4			1.4	0.2			0.6	1.1
	S 14	11:10	20:52	P	W 14	10:35	19:02		W 14	6:04	10:58
		2.0	-0.3			1.0	0.4			0.6	0.9
	M 15	11:27	21:12		Th 15	4:15	17:20		Th 15	0:30	15:25
		1.7	0.0			1.1	0.4			1.3	0.4
E	Tu 16	11:22	21:28	C	F 16	5:15	18:58		F 16	1:22	14:48
		1.4	0.1			1.3	0.2			1.4	0.1
	W 17	9:44	21:36		S 17	6:02	15:57	C	S 17	2:38	14:52
		1.2	0.3			1.5	-0.1			1.5	-0.1
C	Th 18	7:27	21:20		S 18	6:48	16:18	S	S 18	4:25	15:06
		1.3	0.4			1.8	-0.3			1.6	-0.3
	F 19	7:17	16:55	S	M 19	7:27	16:40		M 19	5:56	15:28
		1.5	0.2			1.9	-0.4			1.7	-0.3
P	S 20	7:30	16:58		Tu 20	8:04	16:58		Tu 20	6:58	15:42
		1.8	-0.1			2.1	-0.4			1.7	-0.4
	S 21	7:53	17:21		W 21	8:38	17:21		W 21	7:44	16:08
		2.0	-0.3			2.1	-0.4			1.7	-0.3
	M 22	8:21	17:50		Th 22	9:10	17:43		Th 22	8:25	16:22
		2.2	-0.4			2.1	-0.3			1.7	-0.2
S	Tu 23	8:52	18:18	●	F 23	9:40	18:00		F 23	9:04	16:32
		2.3	-0.5			1.9	-0.2			1.5	0.0
	W 24	9:19	18:43		S 24	10:02	18:10		S 24	8:18	9:31
		2.3	-0.5			1.6	0.0			0.8	1.3
●	Th 25	9:54	19:18		S 25	10:05	18:10	E	S 25	4:07	9:42
		2.3	-0.4			1.4	0.2			0.8	1.1
	F 26	10:20	19:40	E	M 26	9:44	17:58		M 26	4:42	9:48
		2.1	-0.3			1.2	0.2			0.8	0.9
	S 27	10:36	20:01		Tu 27	9:07	17:30		Tu 27	5:11	8:50
		1.8	-0.1			1.1	0.4			0.8	0.9
	S 28	10:29	20:15		W 28	8:26	16:32		W 28	15:36	23:52
		1.6	0.0			1.1	0.3			0.4	1.3
	M 29	10:02	20:05					A	Th 29	15:00	23:50
		1.5	0.2							0.2	1.3
E	Tu 30	9:19	19:38						F 30	14:30	23:45
		1.4	0.3							0.0	1.4
	W 31	8:50	18:21						S 31	14:36	
		1.4	0.3							0.0	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 0.8 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Batavia Mean Local Civil, for the meridian 106° 58' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.				MAY.				JUNE.			
Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.
	W.	Mo.			W.	Mo.			W.	Mo.	
N	S	1	0:00 14:38 1.4 -0.1	D	Tu	1	0:02 13:22 1.6 -0.3	E	F	1	12:40 21:44 0.0 1.4
	M	2	0:25 14:40 1.4 -0.2		W	2	0:40 13:35 1.5 -0.3		S	2	12:50 20:56 0.1 1.4
	Tu	3	5:26 14:45 1.4 -0.3		Th	3	2:05 13:54 1.3 -0.2		S	3	13:12 20:51 0.2 1.6
	W	4	6:25 14:58 1.5 -0.3		F	4	6:04 14:06 21:56 1.1 -0.1 1.2		M	4	13:05 21:00 0.3 1.9
	Th	5	7:12 15:15 1.5 -0.3		S	5	2:50 7:11 14:16 21:30 0.9 1.0 0.0 1.3		Tu	5	5:25 21:17 0.2 2.1
E	F	6	7:55 15:31 1.5 -0.2	E	S	6	3:35 8:10 14:35 21:30 0.7 0.9 0.2 1.5	P	W	6	6:15 21:43 -0.1 2.3
	S	7	2:30 8:34 15:44 22:20 0.8 1.4 0.0 1.1		M	7	4:06 9:10 14:30 21:41 0.5 0.8 0.3 1.7		Th	7	7:15 22:12 -0.3 2.4
	S	8	3:18 9:12 15:50 22:20 0.7 1.3 0.1 1.2		Tu	8	5:04 10:10 14:23 22:00 0.3 0.6 0.4 1.8		F	8	8:18 22:47 -0.4 2.3
	M	9	4:05 9:55 16:00 22:32 0.5 1.0 0.3 1.4		W	9	6:17 22:25 0.2 2.0		S	9	9:18 23:17 -0.5 2.2
	Tu	10	4:54 10:24 16:00 22:54 0.4 0.8 0.4 1.5		Th	10	7:50 23:00 0.0 2.1		S	10	10:08 23:41 -0.4 2.1
P	W	11	6:10 10:52 16:24 23:18 0.4 0.6 0.5 1.6	S	F	11	9:58 23:30 -0.2 2.1	M	M	11	10:55 23:52 -0.4 1.8
	Th	12	8:09 23:50 0.3 1.7		S	12	11:15 23:58 -0.3 2.0		Tu	12	11:31 23:33 -0.3 1.6
	F	13	13:00 0.1		S	13	12:02 -0.4		W	13	11:57 22:45 -0.2 1.5
	S	14	0:30 13:30 1.7 -0.2		M	14	0:27 12:35 1.8 -0.4		Th	14	12:15 22:00 0.0 1.5
	S	15	1:17 13:42 1.7 -0.3	C	Tu	15	0:36 13:00 23:35 1.6 -0.3 1.6	E	F	15	12:11 21:46 0.2 1.5
C	M	16	2:45 14:05 1.6 -0.4		W	16	13:25 22:35 -0.2 1.4		S	16	12:08 21:28 0.2 1.7
	Tu	17	4:45 14:25 1.6 -0.4		Th	17	13:36 22:14 0.0 1.4		S	17	12:00 21:26 0.3 1.8
	W	18	6:10 14:45 1.4 -0.3		F	18	13:40 22:00 0.1 1.4		M	18	7:16 21:26 0.2 1.8
	Th	19	7:14 14:58 22:50 1.3 -0.1 1.1		S	19	13:45 21:51 0.2 1.6	A	Tu	19	7:24 21:32 0.0 1.9
E	F	20	8:18 8:00 15:05 22:32 0.7 1.2 0.1 1.2	S	S	20	13:45 21:58 0.3 1.6		W	20	7:45 21:35 -0.2 2.0
	S	21	4:10 8:34 15:05 22:24 0.8 1.0 0.2 1.3		M	21	13:08 21:58 0.3 1.7		Th	21	8:06 21:46 -0.2 2.1
	S	22	5:05 9:02 15:10 22:27 0.7 0.8 0.3 1.4		Tu	22	12:14 21:58 0.3 1.8		F	22	8:30 22:10 -0.3 2.2
	M	23	6:00 9:25 14:45 22:30 0.7 0.8 0.4 1.5		W	23	10:00 22:10 0.1 1.9	N	S	23	8:30 22:30 -0.4 2.2
	Tu	24	14:15 22:35 0.4 1.6		Th	24	10:10 22:25 -0.1 1.9		S	24	5:52 22:52 -0.5 2.1
A	W	25	13:24 22:45 0.3 1.6	N	F	25	10:45 22:40 -0.1 2.0		M	25	9:18 23:14 -0.5 2.1
	Th	26	12:50 22:58 0.1 1.7		S	26	10:48 23:00 -0.2 2.0		Tu	26	9:52 23:34 -0.4 1.9
	F	27	12:55 23:10 0.0 1.7		S	27	11:00 23:18 -0.3 2.0		W	27	10:24 23:44 -0.3 1.7
	S	28	12:58 23:24 -0.1 1.7		M	28	11:24 23:40 -0.4 1.9		Th	28	10:49 23:30 -0.1 1.5
	S	29	13:04 23:40 -0.2 1.2	D	Tu	29	11:44 -0.4	D	F	29	11:04 21:48 0.0 1.3
N	M	30	13:10 -0.3		W	30	0:00 12:05 1.8 -0.3		S	30	11:20 20:25 0.2 1.4
				D	Th	31	0:06 12:27 22:56 1.6 -0.2 1.4				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 0.8 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Batavia Mean Local Civil, for the meridian 106° 53' E; 0<sup>h</sup> is midnight, 12<sup>a</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.), and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.													
Moon.	Day of		Time and Height of				Moon.	Day of		Time and Height of			
	W.	Mo.	Low Water.					W.	Mo.	Low Water.			
P	S	1	11:40	20:12			P	W	1	5:06	20:12		
			0.4	1.5						-0.2	2.1		
	M	2	5:22	20:17			S	Th	2	5:32	20:44		
			0.8	1.8						-0.2	2.2		
	Tu	3	5:33	20:35			F	F	3	6:00	21:20		
F			0.0	2.1						-0.3	2.2		
	W	4	6:00	21:00			O	S	4	6:22	21:46		
			-0.1	2.3						-0.8	2.1		
	Th	5	6:33	21:28			S	S	5	6:30	22:18		
			-0.3	2.4						-0.2	1.9		
O	F	6	7:10	22:00			M	M	6	7:16	22:40		
			-0.3	2.4						-0.1	1.7		
	S	7	7:46	22:30			Tu	Tu	7	7:38	22:44		
			-0.4	2.2						0.0	1.5		
	S	8	8:26	23:00			W	W	8	7:50	22:24		
A			-0.3	2.1						0.2	1.2		
	M	9	9:01	23:16			E	Th	9	7:38	21:34		
			-0.2	1.8						0.3	1.1		
	Tu	10	9:38	23:10			F	F	10	7:50	20:50		
			-0.1	1.6						0.4	1.0		
E	W	11	10:05	22:38			S	S	11	8:50	20:31		
			0.1	1.4						0.3	1.2		
	Th	12	10:23	21:50			C	S	12	5:10	20:15		
			0.2	1.4						0.3	1.8		
	F	13	10:00	21:25			A	M	13	5:10	20:12		
C			0.3	1.3						0.1	1.4		
	S	14	9:17	21:06			Tu	Tu	14	5:00	20:12		
			0.3	1.5						-0.1	1.5		
	S	15	8:40	20:56			W	W	15	5:10	20:13		
			0.2	1.6						-0.1	1.7		
A	M	16	8:14	20:56			N	Th	16	5:20	20:24		
			0.1	1.7						-0.1	1.8		
	Tu	17	6:17	20:56			F	F	17	5:22	20:40		
			-0.1	1.8						-0.2	1.8		
	W	18	6:30	21:02			S	S	18	5:30	21:05		
N			-0.2	1.9						-0.2	1.8		
	Th	19	6:42	21:06			S	S	19	5:43	21:35		
			-0.2	2.0						-0.2	1.8		
	F	20	6:50	21:20			M	M	20	6:00	22:00		
			-0.2	2.1						-0.2	1.7		
●	S	21	6:56	21:52			Tu	Tu	21	6:20	22:26		
			-0.3	2.1						-0.1	1.6		
	S	22	7:15	22:15			W	W	22	6:40	22:50		
			-0.3	2.0						0.1	1.4		
	M	23	7:40	22:40			E	Th	23	6:47	13:25	15:35	23:05
D			-0.3	1.9						0.2	0.9	0.8	1.1
	Tu	24	8:02	23:09			F	F	24	6:50	13:52	17:35	22:55
			-0.2	1.8						0.4	1.0	0.8	0.9
	W	25	8:23	23:22			S	S	25	6:32	14:34		
			-0.1	1.5						0.5	1.2		
E	Th	26	8:43	23:25			S	S	26	5:13	16:10		
			0.1	1.8						0.5	1.3		
	F	27	8:55	23:25			M	M	27	3:46	17:26		
			0.2	1.0						0.3	1.5		
	S	28	9:02	19:40			Tu	Tu	28	3:40	18:22		
D			0.4	1.2						0.0	1.7		
	S	29	8:20	19:07			W	W	29	3:55	19:07		
			0.4	1.4						-0.1	1.5		
	M	30	5:05	19:20			Th	Th	30	4:20	19:48		
			0.2	1.7						-0.2	1.9		
E	Tu	31	4:50	19:42			F	F	31	4:35	20:27		
			0.0	1.9						-0.2	1.9		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 0.8 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Batavia Mean Local Civil for the meridian 106° 53' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times afternoon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.						NOVEMBER.						DECEMBER.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
P	M 1	4:02 0.2	11:00 1.0	15:19 0.8	21:18 1.0	○	Th 1	2:12 0.3	10:11 1.7			○	S 1	9:54 2.0	21:30 -0.1		
	Tu 2	4:05 0.4	10:44 1.2	16:10 0.8	21:35 0.9		F 2	1:35 0.4	10:20 1.8			A	S 2	10:07 2.0	22:10 -0.1		
	W 3	4:09 0.5	10:52 1.3	16:40 0.7	21:48 0.8		S 3	0:15 0.2	10:30 1.8	23:54 0.1			M 3	10:27 2.0	22:17 -0.2		
	Th 4	3:54 0.5	10:58 1.4			A	S 4	10:44 1.8				N	Tu 4	10:40 2.0	22:25 -0.3		
	F 5	3:20 0.5	11:08 1.5				M 5	0:17 0.0	10:51 1.8				W 5	10:54 1.9	22:54 -0.2		
A	S 6	2:26 0.4	11:20 1.5			N	Tu 6	0:30 0.0	11:05 1.8				Th 6	11:10 1.9	23:13 -0.2		
	S 7	1:58 0.2	11:24 1.5				W 7	0:40 -0.1	11:12 1.8				F 7	11:22 1.7	23:30 -0.1		
	M 8	2:03 0.1	11:28 1.5				Th 8	0:50 -0.1	11:22 1.7				S 8	11:22 1.5	23:52 0.0		
	Tu 9	2:20 0.0	11:34 1.5			○	F 9	0:55 -0.1	11:31 1.5			○	S 9	10:38 1.4			
	W 10	2:20 -0.1	11:40 1.4				S 10	1:06 -0.1	11:10 1.4				M 10	0:06 0.1	9:40 1.3		
N	Th 11	2:22 0.0	11:55 1.4				S 11	1:25 0.0	10:36 1.3			E	Tu 11	0:17 0.3	8:49 1.5		
	F 12	2:25 -0.1	11:58 1.3				M 12	1:35 0.1	9:50 1.3				W 12	0:38 0.3	8:38 1.6		
	S 13	2:40 -0.1	11:35 1.2			E	Tu 13	1:45 0.2	9:20 1.4				Th 13	0:34 0.3	8:44 1.9	17:30 0.2	
	S 14	2:47 0.0	11:08 1.1				W 14	2:05 0.3	9:16 1.6				F 14	8:58 2.1	18:08 0.0		
	M 15	3:03 0.1	10:31 1.1	14:48 0.8	20:10 1.1		Th 15	2:03 0.3	9:25 1.8			P	S 15	9:22 2.3	18:48 -0.3		
E	Tu 16	3:14 0.2	10:03 1.2	15:28 0.7	20:50 0.9	●	F 16	1:54 0.4	9:45 2.0	18:05 0.0		●	S 16	9:54 2.3	19:40 -0.5		
	W 17	3:26 0.3	10:06 1.4	16:00 0.5	21:39 0.8	P	S 17	10:10 2.1	19:20 -0.3			S	M 17	10:24 2.3	20:32 -0.4		
	Th 18	3:34 0.4	10:15 1.5	16:54 0.4	22:14 0.8		S 18	10:40 2.2	20:50 -0.2				Tu 18	10:58 2.2	21:20 -0.4		
	F 19	3:31 0.5	10:36 1.7	18:00 0.2	22:58 0.7	S	M 19	11:08 2.2	22:18 -0.3				W 19	11:23 2.1	21:08 -0.3		
	S 20	2:55 0.5	11:00 1.8	19:38 0.1			Tu 20	11:40 2.1	23:08 -0.3				Th 20	11:42 1.9	22:47 -0.1		
P	S 21	11:30 1.9	23:55 0.1				W 21	12:08 1.9	23:50 -0.2				F 21	11:38 1.7	23:20 0.0		
	M 22	12:04 1.9					Th 22	12:24 1.7				○	S 22	10:58 1.4	23:40 0.2		
	Tu 23	0:32 -0.1	12:42 1.8			○	F 23	0:26 -0.1	11:48 1.5			E	S 23	9:51 1.4	23:35 0.3		
	W 24	1:00 -0.2	13:35 1.7				S 24	0:48 0.0	10:35 1.3				M 24	9:30 1.4	23:32 0.3		
	Th 25	1:30 -0.2	15:22 1.5				S 25	1:05 0.2	9:57 1.3				Tu 25	9:11 1.6	19:13 0.3		
S	F 26	1:52 -0.1	12:14 1.3			E	M 26	1:07 0.3	9:40 1.4				W 26	9:10 1.7	18:40 0.1		
	S 27	2:12 0.0	10:50 1.2				Tu 27	1:14 0.4	9:30 1.6				Th 27	9:15 1.8	19:00 -0.1		
	S 28	2:22 0.2	10:25 1.2				W 28	1:05 0.3	9:34 1.7				F 28	9:22 1.9	19:25 -0.2		
	M 29	2:35 0.3	10:04 1.3	16:12 0.7	20:21 0.9		Th 29	0:10 0.3	9:37 1.8	19:58 0.0		A	S 29	9:28 2.0	19:50 -0.2		
	Tu 30	2:41 0.4	9:58 1.4	17:11 0.6	21:00 0.8		F 30	9:42 2.0	20:48 0.0				S 30	9:40 2.1	20:15 -0.2		
E	W 31	2:41 0.4	10:03 1.5									○	M 31	9:55 2.1	20:18 -0.3		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 0.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Batavia Mean Local Civil, for the meridian 106° 53' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.					
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	M 1	1:25 3.4	9:04 -0.1	15:40 1.7	19:28 1.4	☾	Th 1	2:27 2.1	8:45 0.7	15:10 2.4	21:16 1.3	A	Th 1	1:55 2.2	7:45 0.8	13:58 2.6	20:16 0.9
E	Tu 2	2:06 2.9	9:22 0.2	15:52 1.8	20:35 1.4	A	F 2	3:00 1.8	8:47 0.7	15:37 2.6	22:27 1.3	F	F 2	2:14 1.8	7:47 0.8	14:20 2.8	21:08 0.9
☾	W 3	2:40 2.4	9:31 0.5	16:06 2.1	21:50 1.5		S 3	3:20 1.6	8:40 0.8	16:18 2.8		☾	S 3	2:45 1.6	7:52 0.9	14:51 2.9	22:10 0.9
A	Th 4	3:12 2.0	9:40 0.7	16:40 2.3	22:50 1.6		S 4	0:15 1.2	2:55 1.8	8:30 0.8	17:06 2.9		S 4	3:35 1.4	7:55 1.0	15:30 3.0	23:30 0.9
	F 5	3:55 1.7	9:50 0.8	17:20 2.5			M 5	4:40 0.7	18:05 3.1			N	M 5	3:40 1.1	7:58 0.9	16:16 3.1	
	S 6	1:08 1.3	4:45 1.5	10:00 0.8	18:05 2.7	N	Tu 6	5:00 0.4	19:10 3.2				Tu 6	1:26 0.7	17:18 3.1		
	S 7	5:00 0.8	19:04 2.9				W 7	5:20 0.1	20:06 3.4				W 7	3:14 0.6	18:30 3.2		
	M 8	5:31 0.5	19:54 3.1				Th 8	5:30 0.0	21:15 3.6				Th 8	4:05 0.5	19:48 2.8		
	Tu 9	5:45 0.1	20:48 3.4			○	F 9	5:54 -0.2	22:11 3.7				F 9	4:38 0.2	21:00 3.3		
N	W 10	5:55 -0.1	21:38 3.6				S 10	6:18 -0.3	23:00 3.9				S 10	5:08 0.1	11:30 1.6	14:52 1.0	22:00 3.2
○	Th 11	6:17 -0.4	22:24 3.9				S 11	6:42 -0.3	13:00 1.6	16:54 1.2	23:47 3.7	○	S 11	5:34 0.1	11:44 1.6	16:14 1.1	22:54 3.3
	F 12	6:44 -0.6	13:50 1.3	15:10 1.2	23:08 4.0		M 12	7:06 -0.1	13:15 1.6	17:54 1.0		E	M 12	5:58 0.3	12:00 1.8	17:15 0.9	23:45 3.1
	S 13	7:12 -0.7	13:58 1.3	16:24 1.2	23:52 4.0	E	Tu 13	0:32 3.5	7:32 0.1	13:38 1.9	18:52 0.8	P	Tu 13	6:21 0.5	12:20 2.1	18:10 0.6	
	S 14	7:40 -0.6	14:10 1.4	17:33 1.2		P	W 14	1:20 3.1	7:57 0.3	14:00 2.3	19:54 0.7		W 14	0:34 2.9	6:50 0.7	12:50 2.4	18:58 0.4
	M 15	0:36 3.9	8:10 -0.4	14:28 1.6	18:38 1.1		Th 15	2:08 2.7	8:20 0.6	14:33 2.5	20:44 0.6		Th 15	1:20 2.6	7:20 0.9	13:15 2.8	19:47 0.2
E	Tu 16	1:21 3.6	8:37 -0.2	14:55 1.8	19:40 1.1	☾	F 16	2:51 2.2	8:48 0.9	15:08 2.8	21:55 0.6		F 16	2:10 2.1	7:38 1.0	13:50 3.1	20:50 0.1
☾	W 17	2:10 8.1	9:02 0.2	15:12 2.0	20:50 1.0		S 17	3:51 1.6	8:55 1.0	15:48 3.2	23:27 0.6	☾	S 17	3:10 1.7	7:50 1.1	14:28 3.4	22:00 0.2
☾	Th 18	2:57 2.5	9:20 0.5	15:44 2.5	21:46 1.0		S 18	5:50 1.2	8:50 1.0	16:40 3.3		S	S 18	4:20 1.4	7:52 1.0	15:12 3.5	23:20 0.1
	F 19	3:48 2.0	9:54 0.9	16:27 2.7	23:20 0.9	S	M 19	1:30 0.5	17:45 3.4				M 19	6:00 1.1	7:50 1.0	16:04 3.5	
P	S 20	5:12 1.6	10:00 1.0	17:20 3.0			Tu 20	3:50 0.1	19:00 3.5				Tu 20	1:12 0.4	17:14 3.3		
	S 21	1:10 0.8	18:20 3.3				W 21	4:55 -0.2	20:20 3.5				W 21	2:50 0.2	18:33 3.2		
	M 22	3:40 0.2	19:30 3.5				Th 22	5:33 -0.3	21:28 3.5				Th 22	4:10 0.2	20:00 3.0		
S	Tu 23	5:00 -0.2	20:38 3.7			●	F 23	6:00 -0.2	12:40 1.6	14:54 1.5	22:15 3.4		F 23	4:43 0.3	11:30 1.6	14:02 1.4	21:18 2.9
	W 24	5:48 -0.5	21:40 3.9				S 24	6:20 0.0	12:47 1.6	16:20 1.3	23:12 3.3		S 24	5:05 0.4	11:35 1.6	15:55 1.4	22:20 2.8
●	Th 25	6:25 -0.6	22:34 3.9				S 25	6:36 0.2	12:50 1.6	17:22 1.2	23:52 3.1	●	S 25	5:25 0.6	11:39 1.8	16:58 1.2	23:09 2.6
	F 26	6:56 -0.5	13:50 1.4	15:30 1.3	23:20 3.8	E	M 26	6:51 0.4	13:02 1.8	18:14 1.1		E	M 26	5:41 0.8	11:52 2.1	17:47 0.9	23:57 2.4
	S 27	7:18 -0.4	13:56 1.3	17:00 1.2			Tu 27	0:30 2.8	7:04 0.5	13:18 2.1	19:02 1.0		Tu 27	6:09 0.9	12:11 2.3	18:21 0.8	
	S 28	0:02 3.7	7:40 -0.2	14:02 1.5	17:55 1.3		W 28	1:15 2.4	7:27 0.7	13:40 2.4	19:50 0.9		W 28	0:35 2.3	6:22 1.0	12:24 2.5	18:51 0.6
	M 29	0:40 3.4	8:00 0.0	14:20 1.5	18:48 1.3								Th 29	1:13 2.0	6:32 1.1	12:42 2.8	19:32 0.4
E	Tu 30	1:20 3.0	8:15 0.2	14:34 1.9	19:46 1.3								F 30	1:51 1.7	6:38 1.1	13:07 3.0	20:15 0.4
	W 31	1:55 2.5	8:23 0.5	14:42 2.3	20:38 1.3								S 31	2:27 1.6	6:48 1.1	13:37 3.1	21:01 0.4

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 120th meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st. quar.; ○, full moon; ☾, 3d. quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

MAY.													JUNE.														
Moon		Day of—		Time and Height of High and Low Water.										Moon		Day of—		Time and Height of High and Low Water.									
W. Mo.														W. Mo.													
N	S	1	3:02	7:01	14:10	21:50	D	Tu	1	4:06	8:28	14:50	22:20	E	F	I	4:50	9:10	15:44	23:02							
			1.4	1.1	3.2	0.4				1.2	1.1	3.5	0.0				1.6	1.4	2.8	0.4							
	M	2	4:07	7:13	14:45	22:48			W	2	5:06	7:10	15:08		23:10		S	2	5:32	10:44	16:54	23:32					
			1.2	1.1	3.2	0.4				1.1	1.0	3.8	0.2				1.7	1.5	2.3	0.8							
	Tu	3	4:33	7:30	15:35	23:32			Th	3	6:05	8:05	16:06		23:58		S	3	6:18	12:23	18:32	24:02					
W			1.1	1.0	3.2	0.4	F	F	4	0:06	7:30	16:47	17:20	M			0:09	7:09	14:11	20:39							
	W	4	0:02	8:11	16:06	24:30				0.4	1.6	1.5	2.6				1.1	2.3	0.9	1.6							
	Th	5	1:15	17:45	18:56	25:06			S	5	1:00	7:57	12:28		18:56		Tu	5	1:15	8:11	15:46	22:06					
			0.4	3.0	1.5	2.8				0.6	1.6	1.5	2.8				1.3	2.7	0.4								
	F	6	2:25	19:13	14:25	20:38			S	6	1:49	8:12	14:25		20:38		W	6	3:50	16:56							
E			0.5	2.8	1.9	2.1	M			0.8	1.9	1.8	2.1	O	Th	7	9:40	17:54									
	S	7	3:17	10:15	18:47	20:34			M	7	2:50	9:32	16:21		21:52			3:6	-0.6	2.1							
			0.5	1.6	1.8	2.7				1.1	2.1	0.9	2.1			S	8	10:29	18:41								
	S	8	3:57	10:30	16:37	21:48			Tu	8	3:59	9:40	16:33		22:11			4:0	-0.9								
			0.6	1.6	1.3	2.6				1.8	2.5	0.8	1.8														
O	M	9	4:28	10:39	16:33	22:58	P	W	9	4:07	10:12	17:34	22:58	S			11:15	19:27									
			0.8	2.0	0.8	2.6				1.4	3.0	-0.2	0.0				4:0	-1.0									
	Tu	10	5:08	11:05	17:17	23:50			Th	10	0:32	4:29	10:50		18:26		S	10	11:59	20:10							
			0.9	2.8	0.4	2.5				1.6	1.5	3.4	-0.5				4:2	-0.9									
	W	11	5:42	11:31	18:09	19:15			F	11	1:26	4:52	11:29		19:15		M	11	12:43	20:49							
P			1.1	2.7	0.0	-0.7	S			1.6	1.5	3.8	-0.7	Tu			4:1	-0.7									
	Th	12	0:50	6:02	12:02	19:05			S	12	2:17	5:17	12:09		20:05			8:40	6:00	13:25	21:25						
			2.3	1.2	3.1	-0.3				1.6	1.5	4.0	-0.8				1:4	1.3	3.8	-0.4							
	F	13	1:51	6:22	12:37	19:59			S	13	3:07	5:46	12:52		20:55		W	13	4:09	6:50	14:08	21:35					
			1.9	1.2	3.4	-0.4				1.6	1.4	4.1	-0.7				1:5	1.4	3.5	-0.1							
S	S	14	2:52	6:40	13:16	20:55	C	M	14	3:56	6:17	13:35	21:41	Th			4:52	8:05	14:41	22:15							
			1.6	1.8	3.7	-0.4				1.4	1.2	3.9	-0.5				1:6	1.5	2.9	0.3							
	S	15	3:39	6:54	13:57	21:34			Tu	15	4:28	6:39	14:20		22:11		S	15	4:52	9:29	15:35	22:30					
			1.4	1.2	3.8	-0.2				1.2	1.1	3.6	-0.1				1:6	1.5	2.8	0.7							
	M	16	4:50	7:10	14:42	22:57			W	16	5:05	7:25	15:11		23:17		S	16	5:18	11:05	16:27	22:46					
C			1.2	1.0	3.7	0.0	Th			1.3	1.2	3.3	0.2	S			2:0	1.5	2.8	1.1							
	Tu	17	5:40	7:12	15:32	23:57			F	17	6:55	8:40	16:07		23:57			5:48	12:45	17:38	22:53						
			1.1	1.0	3.4	0.6				1.4	1.2	2.7	0.6				2:2	1.5	1.8	1.5							
	W	18	0:06	16:30	17:19	24:30			F	18	7:20	10:21	17:19		24:30		M	18	6:40	15:56							
			0.2	8.1	2.2	0.0				1.6	1.4	2.2					2:4	1.3									
E	Th	19	1:18	17:48	18:19	19:34	E			0:30	7:25	18:19	19:34	A	Tu	19	7:29	17:08									
			0.4	2.7	1.6	1.7			S	19	0:30	7:25	18:19		19:34			2:7	0.6	1.7							
	F	20	2:22	19:21	19:52	21:13				1:27	7:54	14:53	21:13			W	20	8:19	17:38								
			0.7	2.4	1.8	1.6				1.2	2.0	1.3	1.6				2:9	0.8									
	S	21	3:05	9:40	15:05	20:56			M	21	2:11	8:34	16:16		22:52		Th	21	9:04	18:06							
D			0.9	1.7	1.5	2.1	A			1.4	2.3	0.9	1.5	F			3:2	0.0									
	S	22	3:41	9:55	16:08	22:15			Tu	22	2:50	9:10	17:10		23:50			9:46	18:28								
			1.1	2.0	1.2	2.0				1.4	2.6	0.5				3:5	-0.3										
	M	23	4:20	10:20	16:48	23:13			W	23	3:45	9:49	17:49		24:30		S	23	10:25	18:55							
			1.2	2.1	0.8	2.0				2.9	0.2	0.0	0.0				3:7	-0.6									
A	Tu	24	4:40	10:40	17:32	24:30	N			10:18	18:25				S	24	11:06	19:21									
			1.3	2.4	0.5	0.0				3:2	-0.1	0.0	0.0			3:9	-0.7										
	W	25	0:12	4:52	11:01	18:14			F	25	10:52	18:59	19:59	20:59		M	25	11:49	19:51								
			1.8	1.4	2.8	0.3				8:5	-0.3	0.0	0.0			4:0	-0.8										
	Th	26	0:54	5:00	11:28	18:53			S	26	11:30	19:32	20:32	21:32		Tu	26	12:31	20:21								
P			1.6	1.5	3.0	0.1	N			3:7	-0.4	0.0	0.0			3:9	-0.6										
	F	27	1:32	5:12	11:58	19:30			S	27	12:06	20:10	21:10	22:10		W	27	13:13	20:51								
			1.6	1.4	3.3	0.0				3:8	-0.5	0.0	0.0			3:7	-0.4										
	S	28	2:11	5:32	12:28	20:09			M	28	12:45	20:45	21:45	22:45		Th	28	3:23	7:09	13:56	21:30						
			1.6	1.3	3.4	-0.1				3:8	-0.5	0.0	0.0			1:5	1.4	3.1	-0.2								
N	S	29	2:55	5:54	13:08	20:51	D			13:24	21:16				F	29	3:42	8:08	14:40	21:44							
			1.4	1.2	3.5	-0.1				3:8	-0.4	0.0	0.0			1:6	1.4	3.0	0.2								
	M	30	3:45	6:23	13:40	21:34			W	30	4:12	6:52	14:06	21:54		S	30	4:05	9:31	15:30	22:05						
			1.3	1.2	3.6	-0.1				1:4	1.3	3.6	-0.2			1:7	1.3	2.4	0.5								
	Th	31	4:45	7:50	14:51	22:30				1:5	1.3	3.2	0.0														

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus ( - ) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 120th meridian E.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator. A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.				
Day of— W. Mo.	Time and Height of High and Low Water.				Day of— W. Mo.	Time and Height of High and Low Water.				Day of— W. Mo.	Time and Height of High and Low Water.			
S 1	4:42 10:39 16:41 22:41				P W 1	5:41 14:40				S 1	7:45 17:08			
M 2	5:23 12:25 18:18 22:52				S Th 2	6:50 16:25				S 2	9:01 17:39			
Tu 3	6:19 14:31				F 3	8:03 17:30				M 3	10:09 18:01			
P W 4	7:21 16:05				O S 4	9:11 18:10				Tu 4	10:25 18:01			
Th 5	8:25 17:14				S 5	10:10 18:41				E W 5	10:30 18:01			
F 6	9:21 18:05				M 6	11:25 19:20				Th 6	10:45 18:01			
S 7	10:16 18:46				Tu 7	12:35 19:49				F 7	11:01 18:01			
S 8	11:05 19:22				W 8	1:42 20:00				S 8	12:05 18:01			
M 9	11:52 19:54				E Th 9	2:56 20:10				S 9	1:40 18:01			
Tu 10	12:30 20:10				F 10	3:12 20:20				A M 10	2:01 18:01			
W 11	1:51 20:20				S 11	4:20 20:30				C Tu 11	2:34 18:01			
Th 12	3:14 20:28				C S 12	5:29 20:39				W 12	3:09 18:01			
F 13	4:26 20:37				A M 13	6:35 20:47				N Th 13	3:51 18:01			
S 14	5:41 20:45				Tu 14	7:46 20:55				F 14	4:45 18:01			
S 15	6:58 20:53				W 15	8:58 21:03				S 15	5:58 18:01			
A M 16	8:14 21:01				N Th 16	10:10 21:11				S 16	7:14 18:01			
Tu 17	9:30 21:09				F 17	11:25 21:19				M 17	8:31 18:01			
W 18	10:45 21:17				S 18	12:40 21:27				Tu 18	9:46 18:01			
Th 19	12:00 21:25				S 19	1:55 21:35				E W 19	10:00 18:01			
F 20	1:15 21:33				M 20	3:10 21:43				Th 20	11:15 18:01			
S 21	2:30 21:41				Tu 21	4:25 21:51				F 21	12:30 18:01			
S 22	3:45 21:49				W 22	5:40 21:59				S 22	1:45 18:01			
M 23	5:00 21:57				E Th 23	6:55 22:07				S 23	3:00 18:01			
Tu 24	6:15 22:05				F 24	8:10 22:15				M 24	4:15 18:01			
W 25	7:30 22:13				S 25	9:25 22:23				D Tu 25	5:30 18:01			
Th 26	8:45 22:21				S 26	10:40 22:31				S W 26	6:45 18:01			
F 27	10:00 22:29				M 27	11:55 22:39				Th 27	8:00 18:01			
S 28	11:15 22:37				Tu 28	13:10 22:47				F 28	9:15 18:01			
S 29	12:30 22:45				W 29	14:25 22:55				S 29	10:30 18:01			
M 30	1:45 22:53				S Th 30	15:40 23:03				S 30	11:45 18:01			
Tu 31	3:00 23:01				F 31	16:55 23:11								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 120th meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.); and when diminished by 12 give the times after noon; for instance, 15:47 is 3 47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.				
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.	
	W.	Mo.				W.	Mo.				W.	Mo.		
O	M	1	8:54	16:38	23:00	...	...	4:44	11:20	16:15	22:15	...	...	...
			2.8	0.5	1.6	...	...	0.7	1.8	1.4	2.5	...	...	...
E	Tu	2	3:39	10:11	17:00	23:10	...	5:33	12:14	16:22	22:40	...	...	...
			1.3	2.7	0.7	1.7	...	0.4	1.7	1.4	2.9	...	...	...
A	W	3	4:44	10:58	17:20	23:27	...	6:18	12:58	16:28	23:10	...	...	...
			1.1	2.5	0.9	2.1	...	0.1	1.6	1.4	3.2	...	...	...
N	Th	4	5:32	11:45	17:51	23:46	...	6:55	13:34	16:38	23:42	...	...	...
			0.8	2.4	1.0	2.3	...	0.0	1.6	1.4	3.4	...	...	...
C	F	5	6:02	12:31	18:01	...	...	7:32	14:12	16:55	...	...	...	...
			0.6	2.2	1.1	...	...	0.1	1.7	1.3	...	...	...	...
S	S	6	0:01	6:46	18:19	18:06	...	0:15	8:06	14:50	17:20	...	...	...
			2.6	0.4	1.9	1.1	...	3.5	0.2	1.7	1.3	...	...	...
P	S	7	0:23	7:28	13:55	18:18	...	0:50	8:47	15:27	17:30	...	...	...
			2.9	0.3	1.6	1.1	...	3.6	0.2	1.8	1.2	...	...	...
M	M	8	0:51	8:13	14:34	18:24	...	1:25	9:26	16:20	17:46	...	...	...
			3.2	0.2	1.5	1.0	...	3.5	-0.2	1.9	1.2	...	...	...
N	Tu	9	1:20	8:55	15:16	18:33	...	2:02	10:08	16:50	18:20	...	...	...
			3.3	0.2	1.3	0.9	...	3.4	-0.1	1.8	1.3	...	...	...
C	W	10	1:54	9:45	15:30	18:29	...	2:43	10:50	17:30	19:35	...	...	...
			3.3	0.2	1.1	1.0	...	3.2	0.1	1.8	1.4	...	...	...
S	Th	11	2:29	10:39	...	...	...	3:34	11:36	18:30	21:38	...	...	...
			3.3	0.2	...	...	...	3.0	0.3	1.7	1.4	...	...	...
P	F	12	3:13	11:39	...	...	...	4:40	12:18	19:06	...	...	...	...
			3.2	0.4	...	...	...	2.6	0.6	1.8	...	...	...	...
M	S	13	4:05	12:47	...	...	...	0:02	6:12	13:02	19:45	...	...	...
			3.0	0.5	...	...	...	1.5	2.2	0.9	1.9	...	...	...
N	S	14	5:17	13:51	...	...	...	1:50	8:04	14:16	20:32	...	...	...
			2.8	0.6	...	...	...	1.4	1.8	1.2	2.1	...	...	...
C	M	15	6:48	14:45	21:50	...	...	3:05	9:29	14:56	21:10	...	...	...
			2.6	0.7	1.6	...	...	0.9	1.8	1.4	2.6	...	...	...
S	Tu	16	1:33	8:14	15:25	22:05	...	4:20	11:10	15:25	21:49	...	...	...
			1.5	2.5	0.8	1.7	...	0.4	1.9	1.4	3.0	...	...	...
P	W	17	3:15	9:31	15:56	22:10	...	5:20	12:15	15:50	22:26	...	...	...
			1.3	2.4	0.9	2.1	...	-0.1	1.6	1.5	3.5	...	...	...
M	Th	18	4:19	10:32	16:41	22:41	...	6:10	13:10	16:15	23:09	...	...	...
			0.8	2.4	1.0	2.3	...	-0.6	1.6	1.5	3.9	...	...	...
N	F	19	5:00	11:33	17:12	23:08	...	7:02	23:50	...	...	...	...	...
			0.5	2.3	1.2	2.7	...	-0.8	4.1	...	...	...	...	...
C	S	20	5:56	12:38	17:31	23:40	...	7:50	...	...	...	...	...	...
			0.0	2.1	1.3	3.1	...	-1.0	...	...	...	...	...	...
S	S	21	6:50	13:35	17:50	...	...	0:35	8:40	15:40	17:50	...	...	...
			-0.3	1.8	1.5	...	...	4.2	-0.9	1.4	1.2	...	...	...
P	M	22	0:16	7:42	14:26	18:10	...	1:20	9:27	16:28	18:30	...	...	...
			3.5	-0.6	1.6	1.3	...	4.1	-0.7	1.4	1.2	...	...	...
N	Tu	23	0:55	8:40	15:20	18:28	...	2:04	10:14	17:20	19:12	...	...	...
			3.8	-0.5	1.9	1.4	...	3.8	-0.3	1.5	1.4	...	...	...
C	W	24	1:36	9:35	16:35	18:45	...	2:54	10:55	18:10	20:30	...	...	...
			3.9	-0.5	1.9	1.3	...	3.4	0.1	1.5	1.4	...	...	...
S	Th	25	2:20	10:36	17:50	18:50	...	3:47	11:35	18:46	22:28	...	...	...
			3.8	-0.3	1.9	1.2	...	2.9	0.5	1.5	1.4	...	...	...
P	F	26	3:10	11:40	...	...	...	4:58	12:00	19:00	...	...	...	...
			3.6	-0.1	...	...	...	2.3	0.8	1.7	...	...	...	...
M	S	27	4:05	12:48	...	...	...	1:06	6:46	13:00	19:30	...	...	...
			3.2	0.3	...	...	...	1.5	1.8	1.2	2.0	...	...	...
N	S	28	5:21	13:47	21:15	...	...	2:38	8:55	13:32	20:07	...	...	...
			2.8	0.6	1.6	...	...	1.3	1.6	1.4	2.4	...	...	...
C	M	29	0:50	6:56	14:22	21:20	...	4:14	20:52	...	...	...	...	...
			1.5	2.3	0.9	1.7	...	0.9	2.7	...	...	...	...	...
S	Tu	30	2:50	8:45	15:00	21:25	...	5:10	21:28	...	...	...	...	...
			1.5	2.0	1.2	1.9	...	0.4	3.0	...	...	...	...	...
P	W	31	3:40	9:56	16:02	21:58	...	...	...	...	...	...	...	...
			1.2	1.9	1.3	2.2	...	...	...	...	...	...	...	...

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Coast and Geodetic Survey Charts for this region, and which is 1.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 120° meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.





JULY.										AUGUST.										SEPTEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.							W.		Mo.							W.	Mo.										
P O S	S	1	5:21 -0.1	12:40 1.6	19:27 0.5				S	W	1	0:55 0.7	6:34 -0.1	14:08 2.0	21:20 0.2	O E A N	S	1	2:36 0.8	8:15 0.0	15:05 1.9	21:56 0.1							
	M	2	0:05 0.8	6:08 -0.1	13:31 1.9	20:32 0.4				Th	2	1:55 0.7	7:26 -0.2	14:47 2.1	22:00 0.2		S	2	8:21 0.9	9:02 0.0	15:40 1.8	22:21 0.0							
	Tu	3	1:06 0.7	6:56 -0.2	14:18 2.1	21:28 0.8				F	3	2:44 0.7	8:16 -0.2	15:30 2.1	22:35 0.1		M	3	4:01 1.1	9:49 0.1	16:13 1.6	22:42 0.0							
	W	4	1:58 0.7	7:40 -0.2	15:00 2.2	22:15 0.1				S	4	3:30 0.7	9:02 -0.1	16:06 2.1	23:10 0.1		Tu	4	4:43 1.2	10:31 0.2	16:45 1.5	23:10 0.0							
	Th	5	2:48 0.7	8:24 -0.2	15:43 2.2	23:00 0.1				S	5	4:15 0.8	9:47 0.0	16:42 1.9	23:37 0.1		W	5	5:20 1.2	11:16 0.3	17:20 1.3	23:35 0.1							
E C	F	6	3:35 0.7	9:05 -0.2	16:25 2.2	23:42 0.2				M	6	5:02 0.9	10:31 0.1	17:15 1.7		Th	6	6:00 1.3	12:01 0.4	17:47 1.1									
	S	7	4:20 0.7	9:48 -0.1	17:04 2.1				Tu	7	0:02 0.1	5:50 0.9	11:17 0.8	17:48 1.6	F	7	0:05 0.1	6:45 1.3	12:53 0.6	18:15 0.9									
	S	8	0:20 0.1	5:11 0.7	10:38 0.1	17:42 1.9		E	W	8	0:35 0.0	6:40 1.0	12:05 0.4	18:22 1.4	S	8	0:37 0.1	7:40 1.3	14:00 0.7	18:42 0.8									
	M	9	0:58 0.1	6:07 0.7	11:18 0.2	18:21 1.7				Th	9	1:05 0.0	7:30 1.0	13:08 0.6	18:55 1.2	S	9	1:12 0.2	8:40 1.3										
	Tu	10	1:32 0.1	7:12 0.7	12:11 0.4	18:59 1.5				F	10	1:38 0.1	8:30 1.1	14:15 0.7	19:21 1.0	M	10	1:52 0.2	9:50 1.3										
A N	W	11	2:07 0.0	8:25 0.8	13:15 0.6	19:39 1.3		C	S	11	2:14 0.1	9:46 1.2	16:04 0.7	19:50 0.8	Tu	11	2:50 0.3	10:56 1.4											
	Th	12	2:47 0.0	9:41 1.0	14:40 0.7	20:26 1.1		A	S	12	2:55 0.1	10:58 1.3			N	W	12	4:05 0.3	11:53 1.5	19:45 0.4									
	F	13	3:27 0.1	10:50 1.1	15:30 0.7	21:07 0.9				M	13	3:48 0.1	11:58 1.4	19:50 0.6	22:20 0.7	Th	13	0:05 0.6	5:16 0.3	12:40 1.6	20:09 0.3								
	S	14	4:08 0.1	11:54 1.3	16:22 0.7	22:00 0.8				Tu	14	4:45 0.1	12:45 1.6	20:28 0.5	23:55 0.6	F	14	1:08 0.7	6:19 0.8	13:21 1.6	20:28 0.2								
	S	15	4:50 0.0	12:44 1.5						W	15	5:43 0.1	13:25 1.7	20:56 0.4		S	15	1:48 0.8	7:10 0.2	14:00 1.7	20:50 0.1								
E C	M	16	5:31 0.0	13:22 1.6	20:41 0.5			N	Th	16	1:04 0.6	6:35 0.1	14:00 1.8	21:20 0.3	S	16	2:26 0.9	8:00 0.1	14:36 1.7	21:12 0.1									
	Tu	17	0:10 0.6	6:15 0.0	13:57 1.8	21:20 0.4				F	17	1:53 0.7	7:22 0.1	14:32 1.9	21:43 0.2	M	17	3:01 1.1	8:47 0.1	15:11 1.6	21:40 0.0								
	W	18	1:05 0.6	6:57 0.0	14:30 1.9	21:52 0.3				S	18	2:36 0.7	8:06 0.0	15:06 1.9	22:05 0.2	● Tu	18	3:40 1.2	9:33 0.1	15:50 1.5	22:08 -0.1								
	Th	19	1:59 0.6	7:37 -0.1	15:00 2.0	22:20 0.3		●	S	19	3:15 0.8	8:48 0.0	15:41 1.9	22:28 0.1	E	W	19	4:17 1.4	10:21 0.1	16:30 1.4	22:48 0.0								
	F	20	2:42 0.6	8:12 -0.1	15:33 2.0	22:48 0.2				M	20	3:55 0.9	9:31 0.0	16:15 1.8	22:55 0.0	Th	20	4:57 1.5	11:05 0.1	17:10 1.3	23:16 0.0								
D P	● S	21	3:21 0.7	8:52 0.0	16:05 2.0	23:12 0.2			Tu	21	4:37 1.0	10:16 0.1	16:50 1.7	23:27 0.0	P	F	21	5:45 1.5	12:01 0.2	17:50 1.1	23:51 0.0								
	S	22	4:05 0.7	9:31 0.1	16:40 1.9	23:40 0.1		E	W	22	5:23 1.1	11:05 0.2	17:29 1.5		S	22	6:37 1.6	13:06 0.4	18:33 0.9										
	M	23	4:52 0.7	10:15 0.1	17:15 1.9				Th	23	0:00 0.0	6:06 1.2	12:02 0.8	18:11 1.3	S	23	0:32 0.0	7:37 1.6	14:30 0.5	19:25 0.7									
	Tu	24	0:13 0.0	6:40 0.8	11:02 0.2	17:52 1.8				F	24	0:32 0.0	7:01 1.3	13:03 0.4	18:53 1.1	○ M	24	1:22 0.1	8:50 1.6	16:25 0.4	20:42 0.7								
	W	25	0:49 0.0	6:37 0.9	11:55 0.3	18:33 1.6				S	25	1:17 0.0	8:07 1.4	14:22 0.5	19:42 0.9	s	Tu	25	2:23 0.2	10:08 1.6	18:00 0.3	22:25 0.6							
E D	Th	26	1:28 0.0	7:36 1.0	13:05 0.5	19:21 1.3		○	S	26	2:05 0.1	9:24 1.5	16:20 0.6	20:45 0.7	W	26	3:46 0.2	11:20 1.6	18:58 0.3	23:57 0.7									
	F	27	2:06 0.0	8:40 1.1	14:31 0.6	20:11 1.1		P	M	27	3:02 0.1	10:43 1.6	18:15 0.5	22:12 0.6	Th	27	5:08 0.2	12:24 1.7	19:38 0.2										
	S	28	2:52 0.0	9:58 1.3	16:18 0.7	21:10 0.9			Tu	28	4:10 0.1	11:53 1.7	19:27 0.4	23:45 0.6	F	28	1:00 0.8	6:22 0.2	13:15 1.7	20:10 0.1									
	S	29	3:43 0.0	11:15 1.5	18:10 0.6	22:25 0.7		S	W	29	5:19 0.1	12:53 1.8	20:15 0.3		S	29	1:50 0.9	7:23 0.2	13:59 1.6	20:37 0.0									
	M	30	4:41 0.0	12:19 1.7	19:35 0.5	23:45 0.7			Th	30	0:58 0.6	6:23 0.0	13:43 1.9	20:52 0.2	S	30	2:30 1.1	8:18 0.1	14:35 1.5	21:01 0.0									
P	Tu	31	5:39 -0.1	13:15 1.9	20:34 0.3				F	31	1:52 0.7	7:22 0.0	14:27 1.9	21:27 0.1															

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Hawaiian Government Survey Charts for this region, and which is 0.7 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Hawaiian Standard, 157° 30' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ○, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E	M	1	3:09 1.3	9:05 0.1	15:15 1.4	21:28 0.0	Th	1	3:55 1.7	10:32 0.8	15:39 0.9	21:34 -0.1	A	S	1	4:06 1.9	11:18 0.3	15:35 0.7	21:18 -0.1													
	Tu	2	3:41 1.4	9:50 0.1	15:49 1.3	21:59 0.0	F	2	4:28 1.8	11:14 0.4	16:07 0.8	21:55 0.0	S	2	4:39 1.9	11:57 0.3	16:10 0.6	21:45 0.0														
	W	3	4:13 1.5	10:28 0.2	16:18 1.2	22:20 0.0	S	3	5:01 1.8	11:56 0.4	16:35 0.7	22:20 0.0	N	M	3	5:11 1.9	12:34 0.3	16:55 0.6	22:15 0.1													
	Th	4	4:50 1.6	11:10 0.3	16:45 1.0	22:46 0.0	A	S	4	5:36 1.7	12:44 0.4	17:10 0.7	22:46 0.1	Tu	4	5:48 1.9	13:16 0.3	17:50 0.6	22:31 0.2													
	F	5	5:30 1.5	11:54 0.4	17:12 0.9	23:10 0.1	M	5	6:15 1.7	13:40 0.4	17:55 0.7	23:18 0.0	W	5	6:26 1.8	14:00 0.2	18:55 0.6	23:31 0.3														
A	S	6	6:09 1.5	12:43 0.5	17:40 0.8	23:38 0.1	N	Tu	6	7:00 1.6	14:40 0.3	19:00 0.6	23:55 0.3	Th	6	7:10 1.7	14:58 0.2	20:23 0.7	23:51 0.1													
	S	7	6:53 1.5	13:46 0.6	18:05 0.7	23:59 0.0	W	7	7:50 1.6	15:44 0.3	20:47 0.6	24:19 0.0	F	7	8:09 0.5	16:00 1.5	20:55 0.1	24:50 0.7														
	M	8	0:10 0.2	7:43 1.5	15:17 0.6	19:10 0.7	C	Th	8	0:55 0.4	8:47 1.5	16:40 0.2	22:35 0.7	C	S	8	2:08 0.6	8:55 1.4	16:18 0.3	23:44 0.9												
	Tu	9	0:48 0.3	8:42 1.4	17:08 0.5	20:58 0.6	F	9	2:33 0.5	9:48 1.4	17:22 0.2	23:43 0.8	S	9	3:58 0.7	10:04 1.2	17:00 0.0	23:50 1.1														
	W	10	1:45 0.4	9:48 1.4	18:03 0.4	22:50 0.6	S	10	4:22 0.6	10:50 1.3	18:00 0.1	23:59 0.0	E	M	10	5:37 0.6	11:08 1.1	17:40 0.0	24:59 0.0													
N	Th	11	3:15 0.5	10:52 1.4	18:33 0.3	23:11 0.0	S	11	0:30 1.0	5:50 0.5	11:54 1.3	18:32 0.0	Tu	11	0:40 1.4	6:56 0.5	12:06 0.9	24:59 -0.1														
	F	12	0:05 0.7	4:50 0.4	11:50 1.4	19:00 0.2	M	12	1:05 1.2	6:58 0.4	12:48 1.2	19:04 0.0	W	12	1:25 1.7	8:04 0.4	13:00 0.9	24:59 -0.1														
	S	13	0:52 0.8	6:04 0.4	12:38 1.4	19:28 0.2	E	Tu	13	1:43 1.5	7:57 0.3	13:34 1.1	19:40 -0.1	Th	13	2:10 1.9	9:02 0.3	13:50 0.8	24:59 -0.1													
	S	14	1:31 1.0	7:05 0.3	13:21 1.4	19:55 0.0	W	14	2:22 1.7	8:50 0.2	14:17 1.0	20:16 -0.1	F	14	2:52 2.1	9:55 0.2	14:36 0.7	24:59 -0.2														
	M	15	2:09 1.2	7:59 0.2	14:10 1.4	20:25 0.0	●	Th	15	3:02 1.9	9:40 0.2	14:58 1.0	20:48 -0.1	P	S	15	3:34 2.2	10:45 0.1	15:22 0.7	24:59 -0.1												
E	Tu	16	2:39 1.4	8:49 0.1	14:48 1.3	20:59 -0.1	P	F	16	3:44 2.0	10:32 0.2	15:39 0.8	21:22 -0.2	●	S	16	4:16 2.2	11:35 0.1	16:08 0.7	24:59 -0.1												
	W	17	3:15 1.6	9:31 0.1	15:28 1.2	21:29 -0.1	S	17	4:27 2.1	11:26 0.2	16:20 0.7	21:58 0.0	M	17	5:00 2.2	12:22 0.1	16:58 0.7	24:59 -0.1														
	Th	18	3:55 1.7	10:21 0.1	16:05 1.1	22:00 -0.1	S	18	5:12 2.1	12:24 0.2	17:05 0.7	22:37 0.0	Tu	18	5:44 2.1	13:06 0.1	17:55 0.7	24:59 -0.1														
	F	19	4:39 1.8	11:14 0.2	16:43 0.8	22:32 -0.1	S	M	19	5:59 2.0	13:23 0.2	18:00 0.6	23:21 0.1	W	19	6:28 1.9	13:51 0.1	19:05 0.7	24:59 -0.1													
	S	20	5:25 1.8	12:11 0.3	17:25 0.8	23:09 0.0	Tu	20	6:50 1.9	14:26 0.2	19:14 0.6	23:59 0.0	Th	20	0:00 0.8	7:14 1.7	14:35 0.1	24:59 -0.1														
S	S	21	6:15 1.8	13:20 0.3	18:13 0.7	23:50 0.1	W	21	0:18 0.3	7:45 0.7	15:28 0.2	20:47 0.6	F	21	1:10 0.5	8:00 1.5	15:20 0.1	24:59 -0.1														
	M	22	7:13 1.8	14:40 0.3	19:18 0.6	24:59 0.0	D	Th	22	1:25 0.4	8:45 1.6	16:20 0.2	22:25 0.7	D	S	22	2:37 0.7	8:53 1.3	16:05 0.0	24:59 -0.1												
	Tu	23	0:42 0.2	8:18 1.7	16:07 0.3	20:43 0.6	F	23	3:01 0.5	9:48 1.4	17:06 0.1	23:40 0.9	E	S	23	4:26 0.7	9:57 1.1	16:48 0.1	24:59 -0.1													
	W	24	1:50 0.3	9:27 1.6	17:17 0.2	22:35 0.7	S	24	4:48 0.6	10:48 1.2	17:48 0.0	24:19 0.0	M	24	0:05 1.2	6:05 0.7	16:54 0.9	24:59 -0.1														
	Th	25	3:27 0.4	10:40 1.5	18:06 0.2	23:55 0.8	E	S	25	0:34 1.2	6:15 0.6	11:54 1.1	18:23 0.0	Tu	25	0:55 1.4	7:22 0.6	17:48 0.7	24:59 -0.1													
P	F	26	5:00 0.4	11:42 1.4	18:42 0.1	24:59 0.0	M	26	1:15 1.3	7:22 0.5	12:42 1.0	18:54 0.0	W	26	1:35 1.6	8:28 0.5	17:38 0.7	24:59 -0.1														
	S	27	0:53 1.0	6:20 0.4	12:35 1.4	19:15 0.0	Tu	27	1:55 1.5	8:20 0.4	13:23 0.9	19:20 0.0	Th	27	2:12 1.8	9:18 0.5	18:24 0.7	24:59 -0.1														
	S	28	1:37 1.2	7:25 0.3	13:25 1.3	19:45 0.0	W	28	2:32 1.7	9:10 0.4	14:00 0.8	19:58 -0.1	A	F	28	2:45 1.9	10:00 0.4	19:05 0.6	24:59 -0.1													
	M	29	2:10 1.3	8:17 0.2	14:05 1.2	20:18 0.0	Th	29	3:04 1.8	9:55 0.4	14:32 0.7	20:24 -0.1	S	29	3:15 2.0	10:34 0.3	19:45 0.6	24:59 -0.1														
	Tu	30	2:47 1.5	9:05 0.2	14:40 1.1	20:40 0.0	C	F	30	3:36 1.9	10:36 0.4	15:05 0.7	20:52 0.0	N	S	30	3:47 2.0	11:10 0.3	19:50 0.6	24:59 -0.1												
C	W	31	3:21 1.6	9:49 0.3	15:10 1.0	21:05 -0.1								M	31	4:18 2.0	11:38 0.2	16:02 0.6	24:59 -0.1													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Lower Low Water, which is the datum of soundings on the Hawaiian Government Survey Charts for this region and which is 0.7 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Hawaii Standard, 157°30' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.							
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
E	M 1	5:24	11:40	17:56		☾	Th 1	0:10	6:22	12:38	18:55		Th 1	4:31	10:47	16:58	23:05
		0.5	2.4	0.7				2.3	0.9	2.4	0.9			0.8	2.4	0.8	2.3
☾	Tu 2	0:07	6:28	12:40	18:57	A	F 2	1:08	7:19	13:33	19:51	☾	F 2	5:18	11:37	17:55	
		2.4	0.6	2.5	0.8			2.3	0.9	2.4	0.9			0.9	2.3	0.9	
	W 3	1:10	7:20	13:35	19:52		S 3	2:05	8:15	14:27	20:45		S 3	0:02	6:16	12:37	18:59
		2.4	0.7	2.5	0.8			2.3	0.8	2.5	0.7			2.2	1.0	2.4	0.9
A	Th 4	2:05	8:18	14:25	20:42		S 4	2:59	9:05	15:18	21:32		S 4	1:10	7:28	13:40	20:01
		2.4	0.7	2.6	0.7			2.4	0.7	2.7	0.6			2.2	1.0	2.4	0.8
	F 5	2:55	9:00	15:10	21:28	N	M 5	3:48	9:51	16:08	22:17	N	M 5	2:15	8:28	14:41	21:00
		2.5	0.7	2.7	0.6			2.5	0.6	2.8	0.4			2.3	0.8	2.6	0.6
	S 6	3:38	9:41	15:52	22:07		Tu 6	4:30	10:35	16:47	23:00		Tu 6	3:12	9:20	15:33	21:49
		2.5	0.6	2.8	0.5			2.7	0.5	3.0	0.2			2.5	0.6	2.8	0.4
	S 7	4:18	10:20	16:31	22:45		W 7	5:12	11:15	17:28	23:41		W 7	4:01	10:09	16:21	22:35
		2.6	0.5	2.9	0.4			2.8	0.3	3.1	0.1			2.7	0.4	3.0	0.2
	M 8	4:58	10:58	17:10	23:24	☉	Th 8	5:53	11:58	18:10		Th 8	4:47	10:53	17:07	23:19	
		2.7	0.5	3.0	0.3			3.0	0.2	3.2			3.0	0.2	3.2	0.0	
N	Tu 9	5:34	11:35	17:48			F 9	0:23	6:35	12:40	18:53		F 9	5:30	11:37	17:50	
		2.7	0.4	3.0				0.0	3.1	0.1	3.3			3.2	0.0	3.3	
☉	W 10	0:02	6:12	12:12	18:30		S 10	1:06	7:17	13:24	19:38	☉	S 10	0:02	6:13	12:21	18:38
		0.2	2.8	0.4	3.1			0.0	3.1	0.1	3.2			-0.1	3.3	-0.1	3.4
	Th 11	0:44	6:51	12:55	19:10		S 11	1:50	8:00	14:12	20:25	E	S 11	0:48	6:58	13:08	19:21
		0.1	2.9	0.3	3.1			0.0	3.1	0.1	3.1			-0.1	3.3	-0.1	3.4
	F 12	1:26	7:35	13:38	19:55	E	M 12	2:38	8:50	15:00	21:13	P	M 12	1:32	7:45	13:55	20:08
		0.1	2.9	0.3	3.1			0.1	3.1	0.2	3.0			-0.1	3.3	-0.1	3.3
	S 13	2:11	8:20	14:27	20:43	P	Tu 13	3:28	9:41	15:55	22:10		Tu 13	2:20	8:32	14:43	20:56
		0.1	2.9	0.4	3.0			0.2	3.0	0.3	2.9			0.0	3.2	0.0	3.1
	S 14	3:00	9:10	15:20	21:35		W 14	4:22	10:40	16:58	23:12		W 14	3:08	9:20	15:40	21:53
		0.2	2.9	0.4	2.9			0.4	2.9	0.4	2.7			0.1	3.1	0.2	2.9
	M 15	3:50	10:05	16:15	22:29	☾	Th 15	5:25	11:46	18:08		Th 15	4:05	10:22	16:42	22:57	
		0.3	2.8	0.5	2.8			0.5	2.8	0.5			0.3	3.0	0.3	2.7	
E	Tu 16	4:48	11:04	17:17	23:32		F 16	0:24	6:38	12:59	19:23		F 16	5:10	11:29	17:53	
		0.4	2.8	0.5	2.7			2.6	0.3	2.8	0.5			0.5	2.8	0.4	
☾	W 17	5:48	12:08	18:26			S 17	1:38	7:50	14:07	20:31	☾	S 17	0:10	6:22	12:41	19:08
		0.5	2.7	0.5				2.6	0.5	2.9	0.4			2.6	0.6	2.8	0.5
	Th 18	0:41	6:55	13:17	19:40	S	S 18	2:50	8:58	15:09	21:31		S 18	1:25	7:35	13:53	20:17
		2.7	0.5	2.8	0.4			2.8	0.3	3.1	0.2			2.6	0.5	2.9	0.4
P	F 19	1:52	8:04	14:20	20:42		M 19	3:48	9:55	16:05	22:25		M 19	2:35	8:42	14:55	21:15
		2.7	0.4	3.0	0.3			2.9	0.2	3.2	0.0			2.8	0.4	3.0	0.2
	S 20	2:59	9:08	15:20	21:42		Tu 20	4:40	10:45	16:55	23:10		Tu 20	3:31	9:40	15:50	22:05
		2.8	0.3	3.1	0.1			3.1	0.0	3.3	-0.1			2.9	0.2	3.1	0.1
	S 21	4:00	10:04	16:15	22:35		W 21	5:25	11:32	17:42	23:55		W 21	4:23	10:30	16:39	22:52
		3.0	0.1	3.3	0.0			3.2	0.0	3.4	-0.1			3.1	0.1	3.2	0.0
S	M 22	4:50	10:55	17:05	23:23	●	Th 22	6:08	12:13	18:24		Th 22	5:05	11:15	17:25	23:35	
		3.1	0.0	3.4	-0.1			3.2	0.0	3.4				3.2	0.0	3.3	-0.1
	Tu 23	5:40	11:44	17:54			F 23	0:38	6:48	12:55	19:05		F 23	5:45	11:55	18:04	
		3.2	-0.1	3.5				-0.1	3.2	0.0	3.3			3.2	0.0	3.3	
●	W 24	0:12	6:27	12:30	18:40		S 24	1:18	7:27	13:34	19:43	E	S 24	0:15	6:22	12:30	18:39
		-0.2	3.2	-0.1	3.5			0.0	3.2	0.1	3.2			0.0	3.2	0.0	3.2
	Th 25	0:55	7:09	13:15	19:27	E	S 25	1:55	8:05	14:12	20:21		S 25	0:47	6:57	13:05	19:18
		-0.2	3.2	-0.0	3.4			0.1	3.0	0.2	3.0			0.1	3.1	0.1	3.1
	F 26	1:38	7:52	14:00	20:12		M 26	2:32	8:43	14:52	21:00		M 26	1:20	7:30	13:40	19:47
		-0.1	3.1	0.1	3.2			0.2	2.9	0.4	2.8			0.2	3.0	0.3	2.9
	S 27	2:25	8:37	14:44	20:57		Tu 27	3:10	9:22	15:32	21:40		Tu 27	1:54	8:05	14:16	20:21
		0.0	3.0	0.2	3.0			0.4	2.7	0.6	2.6			0.3	2.9	0.4	2.7
	S 28	3:08	9:20	15:30	21:40	A	W 28	3:49	10:02	16:11	22:21	A	W 28	2:26	8:38	14:49	20:56
		0.2	2.9	0.4	2.8			0.6	2.6	0.7	2.4			0.5	2.7	0.6	2.5
E	M 29	3:52	10:07	16:17	22:30							Th 29	3:00	9:15	15:25	21:30	
		0.4	2.7	0.6	2.6									0.7	2.6	0.7	2.4
	Tu 30	4:40	10:52	17:03	23:17							F 30	3:40	10:00	16:11	22:16	
		0.6	2.6	0.7	2.5									0.8	2.5	0.8	2.3
	W 31	5:28	11:43	17:57								S 31	4:25	10:48	17:08	23:16	
		0.8	2.5	0.9										0.9	2.4	0.9	2.2

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Apia Mean Local Civil, for the meridian 171° 44' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

☉, new moon; ☾, 1st quar.; ☉, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.







OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E	M	1	5:42 3.3	11:51 -0.1	18:01 3.3						Th	1	0:22 0.1	6:30 3.0	12:33 0.3	18:44 3.0	A	S	1	0:30 0.3	6:38 2.7	12:38 0.5	18:50 2.9									
	Tu	2	0:11 0.0	6:20 3.3	12:28 0.0	18:38 3.2					F	2	0:57 0.2	7:03 2.8	13:05 0.4	19:18 2.9	S	2	1:02 0.4	7:10 2.6	13:09 0.6	19:23 2.8										
	W	3	0:49 0.0	6:57 3.2	13:04 0.1	19:14 3.1					S	3	1:30 0.4	7:32 2.7	13:37 0.6	19:51 2.8	N	M	3	1:37 0.4	7:42 2.6	13:42 0.8	19:59 2.7									
	Th	4	1:27 0.1	7:33 3.0	13:40 0.3	19:50 3.0	A	S	4	2:04 0.5	8:09 2.5	14:12 0.7	20:28 2.6	Tu	4	2:15 0.5	8:18 2.5	14:20 0.8	20:40 2.6													
	F	5	2:02 0.3	8:10 2.8	14:15 0.5	20:27 2.8					M	5	2:42 0.6	8:45 2.4	14:50 0.8	21:09 2.5	W	5	2:57 0.6	9:02 2.5	15:07 0.8	21:26 2.6										
A	S	6	2:38 0.5	8:42 2.6	14:52 0.7	21:05 2.6	N	Tu	6	3:25 0.7	9:30 2.3	15:37 0.9	21:58 2.4	Th	6	3:45 0.6	9:54 2.4	16:01 0.8	22:19 2.5													
	S	7	3:17 0.7	9:23 2.4	15:32 0.9	21:48 2.5					W	7	4:16 0.8	10:26 2.3	16:33 1.0	22:55 2.4	F	7	4:38 0.7	10:54 2.4	17:02 0.8	23:20 2.5										
	M	8	4:08 0.8	10:09 2.3	16:18 1.0	22:39 2.3	C	Th	8	5:15 0.8	11:31 2.3	17:40 1.0		C	S	8	5:37 0.8	11:57 2.5	18:07 0.7													
	Tu	9	4:57 0.9	11:07 2.2	17:16 1.1	23:38 2.3					F	9	6:00 2.4	12:19 0.8	18:32 2.4	0.9	S	9	6:22 2.5	12:57 0.6	19:10 2.6											
	W	10	6:00 0.9	12:13 2.2	18:25 1.0						S	10	1:05 2.5	7:20 0.6	18:38 2.6	0.7	E	M	10	1:24 2.6	7:39 0.5	18:57 2.8	20:11 0.4									
E	Th	11	0:43 2.4	7:03 0.8	13:20 2.3	19:32 0.9					S	11	2:04 2.8	8:18 0.5	14:31 2.8	20:44 0.4	Tu	11	2:25 2.8	8:38 0.3	14:54 3.0	21:10 0.2										
	F	12	1:47 2.5	8:02 0.8	14:18 2.5	20:30 0.7					M	12	2:58 2.9	9:11 0.3	15:24 3.0	21:37 0.2	W	12	3:23 3.0	9:35 0.2	15:49 3.2	22:05 0.0										
	S	13	2:42 2.7	8:55 0.5	15:08 2.7	21:20 0.5	E	Tu	13	3:50 3.0	10:01 0.1	16:14 3.2	22:27 0.0	Th	13	4:17 3.1	10:27 0.0	16:40 3.4	22:57 -0.2													
	S	14	3:32 2.9	9:44 0.3	15:57 2.9	22:07 0.2					W	14	4:39 3.2	10:48 0.0	17:00 3.4	23:14 -0.2	F	14	5:10 3.2	11:17 -0.1	17:30 3.5	23:48 -0.3										
	M	15	4:18 3.1	10:30 0.1	16:41 3.2	22:51 0.0	●	Th	15	5:25 3.3	11:34 -0.1	17:47 3.5		●	S	15	6:00 3.3	12:07 -0.1	18:20 3.6													
E	Tu	16	5:03 3.2	11:13 0.0	17:23 3.3	23:31 -0.1	P	F	16	6:02 -0.3	12:14 3.3	18:35 -0.1	3.5	S	S	16	6:38 -0.3	12:51 3.3	19:10 -0.1	3.5												
	W	17	5:48 3.4	11:57 -0.1	18:08 3.4						S	17	6:52 -0.3	13:04 3.3	19:25 0.0	3.5	M	17	1:30 -0.3	7:44 3.2	13:50 0.0	20:04 3.5										
	Th	18	0:21 -0.2	6:33 3.3	12:42 -0.1	18:54 3.4					S	18	1:45 -0.2	7:57 3.2	14:04 0.1	20:19 3.3	Tu	18	2:23 -0.2	8:37 3.1	14:45 0.1	21:00 3.3										
	F	19	1:07 -0.2	7:18 3.3	13:29 0.0	19:42 3.3	S	M	19	2:40 -0.1	8:53 3.0	15:03 0.2	3.2	W	19	3:18 0.0	9:33 3.0	15:45 0.2	21:58 3.1													
	S	20	1:57 -0.1	8:10 3.1	14:20 0.1	20:35 3.2					Tu	20	3:39 0.1	9:56 2.9	16:07 0.4	22:20 3.0	Th	20	4:16 0.1	10:32 2.9	16:45 0.3	22:58 3.0										
S	S	21	2:58 0.0	9:07 2.9	15:17 0.8	21:33 3.1					W	21	4:43 0.2	11:01 2.8	17:13 0.4	23:26 2.9	F	21	5:15 0.2	11:34 2.8	17:47 0.4	23:59 2.8										
	M	22	3:55 0.2	10:11 2.8	16:22 0.5	22:38 2.9	D	Th	22	5:48 0.3	12:08 2.8	18:21 0.5		D	S	22	6:16 0.4	12:36 2.8	18:31 0.5													
	Tu	23	5:03 0.3	11:21 2.7	17:33 0.5	23:49 2.8					F	23	6:35 2.9	13:13 0.3	19:25 2.8	0.4	E	S	23	1:05 2.8	7:16 0.4	13:36 2.8	19:52 0.5									
	W	24	6:20 0.4	12:35 2.7	18:46 0.5						S	24	1:40 2.9	7:53 0.3	14:10 2.9	20:25 0.3	M	24	2:06 2.7	8:15 0.4	14:30 2.8	20:49 0.5										
	Th	25	1:01 2.9	7:23 0.3	13:42 2.8	19:53 0.4	E	S	25	2:37 2.9	8:48 0.3	15:02 3.0	21:17 0.3	Tu	25	3:02 2.7	9:08 0.4	15:19 2.9	21:38 0.4													
E	F	26	2:05 2.9	8:22 0.3	14:39 2.9	20:51 0.3					M	26	3:30 2.9	9:38 0.2	15:50 3.0	22:04 0.2	W	26	3:49 2.7	9:52 0.4	16:03 2.9	22:21 0.4										
	S	27	3:03 3.0	9:15 0.2	15:29 3.1	21:42 0.2					Tu	27	4:15 3.0	10:21 0.2	16:32 3.1	22:45 0.2	Th	27	4:32 2.7	10:34 0.4	16:43 2.9	22:59 0.4										
	S	28	3:53 3.1	10:05 0.1	16:17 3.1	22:29 0.1					W	28	4:55 2.9	11:00 0.2	17:09 3.1	23:23 0.2	A	F	28	5:10 2.7	11:09 0.4	17:19 2.9	23:32 0.4									
	M	29	4:40 3.1	10:48 0.1	16:59 3.2	23:10 0.0					Th	29	5:32 2.9	11:33 0.3	17:49 3.0	23:57 0.3	S	29	5:42 2.7	11:42 0.5	17:53 2.9											
	Tu	30	5:19 3.2	11:25 0.1	17:36 3.2	23:48 0.0	○	F	30	6:05 2.8	12:06 0.4	18:17 3.0		○	S	30	6:06 0.4	12:14 2.7	18:27 0.5	18:27 2.9												
○	W	31	5:50 3.1	11:59 0.2	18:10 3.1											N	M	31	6:40 0.8	12:46 2.7	19:00 0.5	19:00 2.9										

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Apia Mean Local Civil, for the meridian 171° 44' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.					
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
	M 1	2:45 0.2	9:10 9.6	15:18 0.1	21:42 3.3	D	Th 1	3:56 0.4	10:24 3.2	16:21 0.4	22:44 3.2	A	Th 1	2:40 0.5	9:09 3.1	15:01 0.5	21:26 3.1
E	Tu 2	3:36 0.3	10:00 3.5	16:05 0.2	22:30 3.3	A	F 2	4:44 0.5	11:08 3.1	17:02 0.4	23:28 3.2	F	2	3:23 0.5	9:50 3.0	15:42 0.5	22:08 3.1
D	W 3	1:26 0.3	10:50 3.3	16:54 10.3	23:18 3.2		S 3	5:28 0.5	11:52 3.0	17:45 0.5		D	S 3	4:08 0.5	10:31 3.0	16:25 0.5	22:50 3.2
	Th 4	5:15 0.4	11:40 3.2	17:40 0.4			S 4	0:12 3.2	6:12 0.5	12:34 3.0	18:25 0.5		S 4	4:50 0.4	11:15 3.0	17:05 0.5	23:31 3.2
A	F 5	0:05 3.2	6:05 0.5	12:28 3.1	18:25 0.5		M 5	0:55 3.2	6:55 0.5	13:15 2.9	19:08 0.5		M 5	5:30 0.4	11:52 3.0	17:45 0.4	
	S 6	0:52 3.2	6:50 0.5	13:15 3.0	19:07 0.6	N	Tu 6	1:40 3.2	7:40 0.5	13:57 2.9	19:50 0.5	N	Tu 6	0:15 3.2	6:15 0.4	12:35 3.0	18:28 0.4
	S 7	1:35 3.1	7:36 0.6	14:00 2.9	19:50 0.6		W 7	2:24 3.2	8:25 0.5	14:43 2.9	20:32 0.5		W 7	1:00 3.3	7:00 0.3	13:16 3.0	19:14 0.4
	M 8	2:20 3.1	8:22 0.6	14:45 2.8	20:31 0.7		Th 8	3:09 3.2	9:14 0.4	15:30 2.9	21:24 0.5		Th 8	1:45 3.3	7:46 0.3	14:05 3.0	20:04 0.4
	Tu 9	3:05 3.1	9:05 0.6	15:25 2.8	21:15 0.7	○	F 9	4:00 3.2	10:00 0.4	16:17 2.9	22:10 0.5		F 9	2:32 3.3	8:36 0.3	14:53 3.1	20:51 0.4
N	W 10	3:46 3.1	9:52 0.6	16:08 2.8	21:55 0.7		S 10	5:47 3.2	10:51 0.4	17:10 3.0	23:06 0.4		S 10	3:25 3.3	9:29 0.3	15:46 3.1	21:46 0.3
○	Th 11	4:32 3.1	10:35 0.5	16:52 2.8	22:42 0.6		S 11	5:40 3.3	11:44 0.3	18:04 3.1		○	S 11	4:20 3.3	10:24 0.3	16:42 3.2	22:44 0.3
	F 12	5:18 3.2	11:24 0.4	17:40 2.9	23:30 0.5		M 12	0:02 0.3	6:35 3.4	12:40 0.2	19:00 3.2	E	M 12	5:16 3.3	11:20 0.2	17:41 3.3	23:43 0.2
	S 13	6:05 3.2	12:13 0.4	18:30 3.0		E	Tu 13	1:00 0.2	7:30 3.4	13:34 0.1	19:55 3.4	P	Tu 13	6:15 3.4	12:18 0.2	18:39 3.4	
	S 14	0:24 0.4	6:55 3.3	13:02 0.3	19:22 3.1	P	W 14	1:56 0.1	8:25 3.5	14:30 0.0	20:50 3.5		W 14	0:44 0.1	7:11 3.5	13:14 0.1	19:36 3.5
	M 15	1:17 0.3	7:49 3.4	13:55 0.2	20:14 3.2		Th 15	2:55 0.0	9:20 3.6	15:25 -0.1	21:46 3.6		Th 15	1:42 0.0	8:08 3.6	14:10 0.0	20:32 3.7
	Tu 16	2:12 0.2	8:42 3.4	14:48 0.1	21:08 3.4	☾	F 16	3:50 -0.1	10:12 3.6	16:16 -0.1	22:40 3.7		F 16	2:40 -0.1	9:08 3.6	15:05 -0.1	21:27 3.8
E	W 17	3:07 0.1	9:34 3.5	15:40 0.0	22:02 3.5		S 17	4:45 -0.1	11:08 3.6	17:10 -0.1	23:33 3.8	☾	S 17	3:33 -0.2	9:57 3.7	15:58 -0.2	22:20 3.9
☾	Th 18	4:05 0.0	10:28 3.5	16:32 0.0	22:56 3.6		S 18	5:40 -0.2	12:00 3.6	18:00 -0.1		S	S 18	4:28 -0.2	10:50 3.7	16:50 -0.2	23:12 3.9
	F 19	5:00 0.0	11:22 3.5	17:25 -0.1	23:50 3.7	S	M 19	0:25 3.8	6:34 -0.1	12:54 3.6	18:54 -0.1		M 19	5:20 -0.2	11:42 3.7	17:42 -0.1	
P	S 20	5:55 -0.1	12:18 3.5	18:18 -0.1			Tu 20	1:19 3.8	7:27 -0.1	13:47 3.5	19:46 0.0		Tu 20	0:05 3.9	6:12 -0.2	12:35 3.6	18:34 0.0
	S 21	0:45 3.7	6:51 -0.1	13:11 3.5	19:12 0.0		W 21	2:11 3.7	8:20 0.0	14:41 3.4	20:40 0.1		W 21	0:59 3.8	7:05 -0.1	13:27 3.5	19:26 0.1
	M 22	1:40 3.8	7:48 -0.1	14:07 3.5	20:06 0.0		Th 22	3:08 3.6	9:13 0.1	15:35 3.3	21:35 0.2		Th 22	1:51 3.6	8:00 0.1	14:21 3.3	20:20 0.2
S	Tu 23	2:32 3.7	8:42 0.0	15:02 3.4	21:00 0.1	●	F 23	4:00 3.5	10:08 0.2	16:30 3.2	22:27 0.4		F 23	2:45 3.5	8:50 0.2	15:15 3.2	21:11 0.4
	W 24	3:27 3.7	9:36 0.0	15:57 3.4	21:54 0.1		S 24	4:54 3.4	11:00 0.4	17:25 3.1	23:19 0.4		S 24	3:39 3.3	9:45 0.4	16:09 3.1	22:06 0.5
●	Th 25	4:20 3.7	10:30 0.1	16:51 3.3	22:48 0.2		S 25	5:48 3.3	11:55 0.4	18:18 3.0		●	S 25	4:36 3.2	10:37 0.5	17:01 3.0	23:00 0.6
	F 26	5:15 3.6	11:25 0.1	17:46 3.2	23:41 0.3	E	M 26	0:12 0.5	6:40 3.2	12:45 0.5	19:05 3.0		M 26	5:29 3.1	11:29 0.6	17:54 2.9	23:50 0.6
	S 27	6:10 3.5	12:17 0.2	18:40 3.2			Tu 27	1:05 0.5	7:30 3.1	13:34 0.5	19:57 3.0		Tu 27	6:21 3.0	12:17 0.7	18:42 2.9	
	S 28	0:36 0.3	7:04 3.5	13:10 0.3	19:34 3.2		W 28	1:52 0.6	8:20 3.1	14:20 0.5	20:42 3.0		W 28	0:40 0.7	7:10 2.9	13:03 0.7	19:28 2.9
	M 29	1:26 0.4	7:54 3.4	14:00 0.3	20:24 3.2							A	Th 29	1:26 0.7	7:56 2.9	13:45 0.7	20:10 3.0
E	Tu 30	2:20 0.4	8:45 3.3	14:50 0.3	21:12 3.2								F 30	2:09 0.6	8:38 2.9	14:25 0.7	20:50 3.0
	W 31	3:08 0.4	9:34 3.2	15:35 0.4	22:00 3.2								S 31	2:50 0.5	9:15 2.9	15:05 0.6	21:31 3.1

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 1.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is New Zealand Standard, 172° 30' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
N D	S	1	3:32 0.5	9:55 3.0	15:45 0.5	22:11 3.2	D	Tu	1	3:37 0.3	9:56 3.1	15:50 0.4	22:18 3.3	E	F	1	4:42 0.1	11:05 3.3	17:02 0.2	23:30 3.4												
	M	2	4:12 0.4	10:33 8.0	16:26 0.4	22:52 3.2		W	2	4:20 0.2	10:40 3.1	16:38 0.3	23:08 3.3		S	2	5:32 0.1	11:56 3.4	17:58 0.1	23:58 3.4												
	Tu	3	4:55 0.3	11:14 3.1	17:09 0.4	23:37 3.3		Th	3	5:07 0.2	11:28 3.2	17:25 0.2	23:52 3.4		S	3	6:20 3.4	12:50 0.0	18:53 3.5	18:53 0.1												
	W	4	5:40 0.3	11:59 3.1	17:55 0.3	24:18 3.3		F	4	5:57 0.1	12:17 3.3	18:18 0.2	24:28 3.4		M	4	1:18 3.4	7:20 0.0	13:47 3.5	19:50 0.0												
	Th	5	6:23 3.3	12:42 3.2	18:42 0.3	25:01 3.3		S	5	6:43 3.4	13:10 0.1	19:12 3.3	25:11 0.1		Tu	5	2:15 3.4	8:15 0.0	14:42 3.6	20:50 0.0												
	F	6	1:12 3.3	7:15 0.2	13:35 3.2	19:35 0.2		E	S	6	1:39 3.4	7:41 0.1	14:05 3.4		20:10 0.1	P	W	6	3:12 3.4	9:12 0.0	15:40 3.7	21:49 -0.1										
	S	7	2:04 3.3	8:07 0.2	14:29 3.2	20:30 0.2		M	7	2:35 3.4	8:38 0.1	15:03 3.4	21:09 0.1		O	Th	7	4:10 3.5	10:10 0.0	16:37 3.7	22:47 -0.1											
	S	8	2:59 3.3	9:02 0.2	15:23 3.3	21:27 0.2		Tu	8	3:34 3.4	9:37 0.1	16:00 3.5	22:09 0.0		F	8	5:10 3.5	11:06 0.0	17:34 3.8	23:45 -0.2												
	F O P	M	9	3:55 3.4	9:59 0.2	16:31 3.3		22:27 0.1	P	W	9	4:33 3.4	10:33 0.1		17:00 3.6	23:09 -0.1	S	S	9	6:05 3.5	12:04 0.0	18:30 3.9	23:58 3.9									
		Tu	10	4:55 3.4	10:58 0.1	17:20 3.4		23:28 0.0		Th	10	5:23 3.5	11:32 0.0		17:57 3.7	23:39 3.7	S	10	6:40 -0.2	12:42 3.6	19:00 0.0	24:30 3.9										
W		11	5:55 3.5	11:56 0.1	18:20 3.6	24:28 3.6	F	11		6:07 -0.1	12:30 3.6	18:54 0.0	24:08 8.8	M	11	1:35 -0.2	7:58 3.6	13:54 0.0	20:18 3.9													
Th		12	6:30 0.0	12:54 3.5	19:16 0.0	25:01 3.7	S	S		12	1:04 -0.2	7:27 3.6	18:25 -0.1	23:48 8.9	Tu	12	2:28 -0.2	8:52 3.6	14:48 0.0	21:12 3.8												
F		13	1:25 -0.1	7:49 3.6	13:50 -0.1	20:12 3.8	S	13		1:59 -0.3	8:20 3.7	14:20 -0.1	20:42 4.0	W	13	3:20 -0.2	9:45 3.6	15:41 0.0	22:05 3.7													
S		14	2:22 -0.2	8:45 3.7	14:45 -0.2	21:05 3.9	M	14		2:52 -0.3	9:15 3.7	15:14 -0.1	21:35 4.0	C	Th	14	4:13 -0.1	10:37 3.5	16:34 0.1	22:58 3.6												
S		15	3:15 -0.3	9:37 3.7	15:38 -0.2	22:00 4.0	C	Tu		15	3:45 -0.3	10:08 3.7	16:07 -0.1	22:28 3.9	E	F	15	5:05 0.0	11:28 3.5	17:27 0.2	23:51 3.5											
M		16	4:08 -0.3	10:30 3.7	16:30 -0.2	22:51 3.9	W	16		4:37 -0.2	11:00 3.6	16:58 0.0	23:23 3.8	S	16	5:58 0.1	12:19 3.4	18:19 0.3	24:30 3.8													
Tu		17	5:00 -0.3	11:22 3.7	17:22 -0.1	23:45 3.8	Th	17		5:29 -0.1	11:52 3.5	17:50 0.1	23:55 3.9	S	17	6:43 3.3	13:10 0.3	19:10 3.3	24:58 0.4													
W		18	5:51 -0.2	12:15 3.6	18:14 0.0	24:38 3.9	F	18		6:15 3.6	12:45 0.1	18:43 0.2	24:43 4.0	M	18	1:37 3.1	7:32 0.4	14:00 3.2	20:00 0.5													
E	Th	19	6:38 3.7	13:07 0.0	19:07 3.5	25:25 0.1	E	S	19	1:09 3.4	7:12 0.2	13:36 3.3	19:37 0.3	A	Tu	19	2:27 3.0	8:18 0.6	14:44 3.1	20:51 0.6												
	F	20	1:30 3.5	7:36 0.2	14:00 3.3	20:00 0.3		S	20	2:02 3.2	8:01 0.4	14:29 3.2	20:30 0.5	W	20	3:15 2.9	9:00 0.7	15:31 3.0	21:35 0.7													
	S	21	2:27 3.4	8:29 0.3	14:54 3.2	20:52 0.4		M	21	2:56 3.1	8:51 0.6	15:18 3.1	21:20 0.6	Th	21	4:01 2.8	9:43 0.8	16:15 3.0	22:18 0.7													
	S	22	3:20 3.2	9:20 0.5	15:45 3.0	21:45 0.6		Tu	22	3:49 2.9	9:39 0.7	16:07 3.0	22:10 0.7	●	F	22	4:42 2.7	10:22 0.8	16:56 3.0	23:00 0.7												
	M	23	4:15 3.0	10:10 0.6	16:37 3.0	22:37 0.7		W	23	4:38 2.8	10:24 0.8	16:51 2.9	22:55 0.7	N	S	23	5:22 2.7	11:02 0.8	17:37 3.0	23:40 0.6												
	Tu	24	5:08 2.9	11:00 0.7	17:23 2.9	23:25 0.7		Th	24	5:25 2.7	11:06 0.9	17:35 2.9	23:38 0.7	S	24	6:01 2.7	11:45 0.8	18:20 3.0	24:00 0.7													
	W	25	5:57 2.8	11:45 0.8	18:10 2.9	24:18 0.7		F	25	6:06 2.7	11:47 0.9	18:15 2.9	24:28 0.7	M	25	6:23 0.6	12:13 2.8	19:05 0.7	24:58 3.1													
	Th	26	6:43 0.7	12:30 2.8	19:00 0.8	25:08 2.9		S	26	6:20 0.7	12:25 2.7	18:56 0.8	24:56 3.0	Tu	26	1:08 0.5	7:27 2.9	13:15 0.6	19:52 3.2													
	F	27	7:24 0.7	13:07 2.8	19:38 0.8	25:58 3.0		N	S	27	6:59 0.6	7:22 2.8	13:05 0.7	19:37 3.1	W	27	1:55 0.4	8:15 3.0	14:05 0.4	20:38 3.3												
	S	28	1:35 0.6	8:01 2.8	13:45 0.7	20:12 3.0		M	28	1:40 0.5	8:00 2.9	13:47 0.6	20:18 3.2	Th	28	2:41 0.3	9:02 3.1	15:00 0.3	21:27 3.3													
N	S	29	2:15 0.5	8:38 2.9	14:25 0.6	20:52 3.1	Tu	29	2:22 0.4	8:42 3.0	14:33 0.5	21:02 3.2	F	29	3:30 0.2	9:54 3.3	15:52 0.2	22:17 3.4														
	M	30	2:54 0.4	9:15 3.0	15:05 0.5	21:34 3.2	W	30	3:08 0.3	9:26 3.1	15:20 0.4	21:50 3.3	D	S	30	4:21 0.1	10:48 3.4	16:47 0.1	23:10 3.4													
							D	Th	31	3:55 0.2	10:13 3.2	16:10 0.3	22:37 3.4																			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 1.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is New Zealand Standard, 172° 30' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.				
	W.	Mo.					W.	Mo.					W.	Mo.					
	S	1	5:05 0.0	11:38 3.5	17:41 0.0	P	W	1	0:44 3.5	6:42 -0.1	13:10 3.8	19:18 -0.1	S	1	2:12 3.5	8:10 0.0	14:38 3.7	20:45 0.0	
	M	2	0:05 3.4	6:07 0.0	12:34 3.6	S	Th	2	1:36 3.5	7:35 -0.1	14:05 3.8	20:12 -0.1	S	2	3:05 3.4	9:04 0.1	15:30 3.6	21:40 0.1	
	Tu	3	1:00 3.5	7:00 0.0	13:28 3.7	F	3	2:32 3.5	8:30 0.0	14:58 3.8	21:07 0.0	O	M	3	4:00 3.3	10:00 0.2	16:28 3.5	22:36 0.2	
P	W	4	1:55 3.5	7:55 0.0	14:24 3.7	S	4	3:26 3.4	9:24 0.0	15:55 3.7	22:00 0.0		Tu	4	4:56 3.2	10:55 0.3	17:24 3.4	23:28 0.3	
	Th	5	2:50 3.5	8:50 0.0	15:20 3.8	O	S	5	4:20 3.4	10:20 0.1	16:48 3.7	22:56 0.1	E	W	5	5:50 3.2	11:50 0.4	18:18 3.8	
S	F	6	3:48 3.5	9:48 0.0	16:15 3.8	M	6	5:17 3.3	11:15 0.2	17:44 3.6	23:56 0.1		Th	6	0:21 0.4	6:45 3.2	12:42 0.4	19:12 3.2	
O	S	7	4:45 3.5	10:42 0.0	17:10 3.8	Tu	7	6:14 3.3	12:10 0.2	18:38 3.5		F	7	1:15 0.4	7:36 3.2	13:35 0.4	20:04 3.2		
	S	8	5:42 3.5	11:38 0.0	18:05 3.8	W	8	0:46 0.2	7:06 3.3	13:05 0.3	19:33 3.5	S	8	2:02 0.4	8:25 3.2	14:25 0.4	20:54 3.2		
	M	9	0:15 -0.1	6:37 3.5	12:34 0.1	E	Th	9	1:40 0.2	8:03 3.3	14:00 0.3	20:27 3.4	S	9	2:48 0.5	9:10 3.2	15:12 0.4	21:38 3.1	
	Tu	10	1:10 -0.1	7:34 3.5	13:30 0.1	F	10	2:30 0.2	8:54 3.3	14:50 0.3	21:17 3.4	A	M	10	3:34 0.5	9:55 3.2	15:58 0.4	22:20 3.1	
	W	11	2:05 0.0	8:26 3.5	14:22 0.1	S	11	3:20 0.3	9:44 3.4	15:42 0.3	22:08 3.3	C	Tu	11	4:15 0.5	10:40 3.2	16:38 0.4	23:02 3.1	
	Th	12	2:55 0.0	9:20 3.4	15:15 0.2	C	S	12	4:06 0.8	10:30 3.3	16:30 0.4	22:55 3.2	W	12	4:52 0.5	11:20 3.2	17:20 0.4	23:42 3.0	
E	F	13	3:47 0.1	10:10 3.4	16:10 0.2	A	M	13	4:52 0.4	11:15 3.3	17:17 0.4	23:44 3.1	N	Th	13	5:33 0.5	12:02 3.2	18:00 0.4	
C	S	14	4:38 0.2	11:00 3.4	17:00 0.3	Tu	14	5:35 0.4	12:00 3.2	18:02 0.4		F	14	0:21 8.0	6:15 0.5	12:44 3.2	18:45 0.4		
	S	15	5:25 0.2	11:50 3.3	17:50 0.3	W	15	0:24 3.0	6:16 0.5	12:45 3.2	18:45 0.5	S	15	1:02 3.0	6:56 0.5	13:28 3.2	19:30 0.4		
A	M	16	0:15 3.2	6:12 0.4	12:37 3.3	N	Th	16	1:06 3.0	6:57 0.5	13:26 3.2	19:27 0.5	S	16	1:46 3.0	7:44 0.4	14:15 3.2	20:16 0.4	
	Tu	17	1:04 3.1	6:57 0.5	13:22 3.2	F	17	1:48 2.9	7:38 0.5	14:11 3.2	20:12 0.6	M	17	2:33 3.0	8:32 0.4	15:04 3.2	21:05 0.4		
	W	18	1:50 3.0	7:40 0.6	14:08 3.2	S	18	2:30 2.9	8:18 0.6	14:53 3.1	20:53 0.5	Tu	18	3:25 3.0	9:24 0.4	16:00 3.2	21:57 0.4		
	Th	19	2:33 2.9	8:20 0.6	14:50 3.1	S	19	3:11 2.8	9:04 0.6	15:38 3.1	21:40 0.5	●	W	19	4:20 3.1	10:20 0.4	16:51 3.2	22:52 0.2	
N	F	20	3:15 2.8	9:00 0.7	15:34 3.1	●	M	20	3:57 2.9	9:50 0.6	16:27 3.1	22:29 0.5	E	Th	20	5:15 3.2	11:20 0.8	17:50 3.3	23:50 0.3
	S	21	3:57 2.7	9:40 0.7	16:18 3.1	Tu	21	4:50 2.9	10:40 0.5	17:18 3.2	23:20 0.4		F	21	6:12 8.3	12:16 0.2	18:47 3.4		
●	S	22	4:38 2.7	10:24 0.7	17:00 3.1	W	22	5:40 3.0	11:35 0.4	18:10 3.2		P	S	22	0:46 0.2	7:10 3.4	13:15 0.1	19:40 3.5	
	M	23	5:22 2.8	11:10 0.7	17:47 3.1	E	Th	23	0:18 0.4	6:34 3.1	12:32 0.3	19:05 3.3	S	23	1:42 0.1	8:04 3.6	14:10 -0.1	20:35 3.6	
	Tu	24	6:10 2.9	12:00 0.6	18:35 3.1	F	24	1:08 0.3	7:30 3.2	13:31 0.2	20:00 3.4	M	24	2:38 0.0	9:00 3.7	15:06 -0.2	21:30 3.6		
	W	25	0:38 0.4	7:00 3.0	12:50 0.5	S	25	2:03 0.1	8:24 3.4	14:28 0.1	20:54 3.5	☽	Tu	25	3:30 -0.1	9:54 3.8	16:00 -0.2	22:21 3.7	
	Th	26	1:30 0.3	7:52 3.1	13:45 0.4	S	26	2:55 0.0	9:18 3.5	15:21 0.0	21:47 3.5	S	W	26	4:20 -0.2	10:45 3.9	16:52 -0.3	23:15 3.7	
E	F	27	2:20 0.2	8:42 3.2	14:40 0.2	☽	M	27	3:50 0.0	10:11 3.7	16:17 -0.1	22:40 3.6	Th	27	5:14 -0.2	11:38 3.9	17:45 -0.2		
	S	28	3:12 0.1	9:36 3.4	15:37 0.1	Tu	28	4:40 -0.1	11:05 3.8	17:12 -0.2	23:32 3.6	F	28	0:05 3.6	6:05 -0.1	12:30 3.8	18:37 -0.2		
☽	S	29	4:05 0.0	10:30 3.5	16:32 0.0	W	29	5:33 -0.1	11:58 3.8	18:05 -0.2		S	29	1:00 3.6	6:58 0.0	13:25 3.7	19:30 0.0		
	M	30	4:57 0.0	11:23 3.6	17:26 0.0	S	Th	30	0:25 3.6	6:24 -0.1	12:50 3.8	18:58 -0.1	S	30	1:52 3.5	7:50 0.1	14:18 3.6	20:24 0.1	
	Tu	31	5:50 -0.1	12:17 3.7	18:22 -0.1	F	31	1:19 3.6	7:18 -0.1	13:44 3.8	19:50 -0.1								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 1.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is New Zealand Standard, 172° 30' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☽, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.	Time				Height					W.	Mo.	Time				Height					W.	Mo.	Time				Height			
E	M	1	2:46 8.3	8:47 0.2	15:14 3.5	21:19 0.3	○	Th	1	4:05 3.1	10:18 0.5	16:47 3.0	22:40 0.6	○	S	1	4:35 3.0	10:41 0.7	17:10 2.8	22:32 0.8												
	Tu	2	3:40 3.2	9:40 0.3	16:08 3.3	22:12 0.4		F	2	5:05 3.1	11:08 0.6	17:40 2.9	23:30 0.7	A	S	2	5:20 3.0	11:26 0.7	17:54 2.7	23:35 0.8												
	W	3	4:36 3.1	10:35 0.4	17:05 3.2	23:05 0.5		S	3	5:53 3.0	11:55 0.6	18:27 2.9		M	3	6:08 3.0	12:06 0.7	18:34 2.7														
	Th	4	5:32 3.1	11:30 0.5	18:00 3.1	23:58 0.6	A	S	4	6:14 0.7	12:38 3.0	19:10 0.6	2:8 2.8	N	Tu	4	6:13 0.8	12:43 3.0	19:10 0.7	2:7 2.7												
	F	5	6:20 3.1	12:24 0.5	18:54 3.0			M	5	6:54 0.8	13:25 3.0	19:50 0.6	2:8 2.8		W	5	6:50 0.8	13:26 3.0	19:45 0.6	2:8 2.8												
A	S	6	6:47 0.6	7:08 3.1	13:10 0.6	19:40 3.0	N	Tu	6	1:35 0.7	8:00 3.1	14:03 0.6	20:27 2.8		Th	6	1:28 0.7	8:08 3.1	14:04 0.5	20:26 2.9												
	S	7	1:32 0.6	7:55 3.1	13:56 0.5	20:24 3.0		W	7	2:12 0.7	8:39 3.1	14:42 0.5	21:04 2.9		F	7	2:14 0.6	8:44 3.1	14:47 0.4	21:06 3.0												
	M	8	2:13 0.6	8:37 3.1	14:40 0.5	21:05 3.0		Th	8	2:50 0.6	9:20 3.2	15:20 0.4	21:41 3.0		S	8	3:00 0.5	9:28 3.2	15:30 0.3	21:54 3.1												
	Tu	9	2:53 0.5	9:18 3.2	15:18 0.5	21:42 3.0	C	F	9	3:31 0.5	10:00 3.2	16:04 0.3	22:25 3.1	C	S	9	3:47 0.4	10:14 3.2	16:20 0.2	22:42 3.2												
	W	10	3:31 0.5	10:00 3.2	16:00 0.4	22:23 3.0		S	10	4:16 0.4	10:46 3.2	16:49 0.2	23:08 3.1	E	M	10	4:40 0.3	11:05 3.3	17:08 0.2	23:31 3.3												
C	Th	11	4:12 0.5	10:40 3.2	16:40 0.4	23:00 3.0		S	11	5:05 0.3	11:32 3.3	17:34 0.2	23:56 3.2		Tu	11	5:30 0.2	11:58 3.3	18:00 0.1													
	F	12	4:53 0.4	11:20 3.2	17:25 0.3	23:41 3.1		M	12	5:55 0.3	12:20 3.3	18:22 0.2		W	12	6:24 3.4	12:50 0.1	18:54 3.3	18:54 0.1													
	S	13	5:37 0.4	12:05 3.3	18:07 0.3		E	Tu	13	6:46 3.3	13:12 0.2	19:16 0.2		Th	13	1:20 3.4	7:24 0.1	18:46 3.4	19:47 0.1													
	S	14	6:26 3.1	12:52 0.3	18:54 3.3	0.3		W	14	1:40 3.3	7:42 0.2	14:10 3.3	20:10 0.2		F	14	2:15 3.5	8:20 0.0	14:42 3.4	20:50 0.1												
	M	15	1:14 3.1	7:10 0.3	13:42 3.2	19:44 0.3		h	15	2:35 3.4	8:40 0.1	15:07 3.3	21:08 0.2		S	15	3:12 3.6	9:18 0.0	15:40 3.4	21:40 0.0												
E	Tu	16	2:05 3.2	8:05 0.3	14:35 3.2	20:35 0.3	●	F	16	3:32 3.4	9:40 0.1	16:05 3.4	22:04 0.1	P	S	16	4:08 3.7	10:20 -0.1	16:40 3.4	22:38 0.0												
	W	17	2:58 3.2	9:00 0.3	15:30 3.3	21:34 0.3	P	S	17	4:30 3.6	10:39 0.0	17:03 3.4	23:00 0.1	S	M	17	5:04 3.8	11:15 -0.1	17:35 3.5	23:32 0.0												
	Th	18	3:55 3.3	10:00 0.2	16:28 3.3	22:30 0.2		S	18	5:23 3.7	11:40 -0.1	18:00 3.5	23:58 0.0		Tu	18	6:00 3.8	12:11 -0.2	18:30 3.6													
	F	19	4:55 3.4	11:00 0.1	17:26 3.4	23:27 0.2	S	M	19	6:24 3.8	12:35 -0.2	18:56 3.6		W	19	6:30 0.0	12:55 3.9	18:06 -0.2	19:27 3.6													
	S	20	5:50 3.5	11:59 0.0	18:24 3.4			Tu	20	6:55 -0.1	13:20 3.9	19:53 -0.3	19:53 3.7		Th	20	1:25 -0.1	7:50 3.9	14:00 -0.2	20:22 3.6												
S	S	21	6:22 0.1	6:46 3.6	12:57 -0.1	19:20 3.5		W	21	1:50 -0.1	8:14 3.9	14:24 -0.3	20:48 3.7		F	21	2:21 -0.1	8:48 3.9	14:54 -0.2	21:16 3.6												
	M	22	1:20 0.0	7:42 3.8	13:52 -0.2	20:15 3.6		Th	22	2:44 -0.2	9:08 4.0	15:17 -0.3	21:40 3.7		S	22	3:15 -0.1	9:42 3.8	15:43 -0.2	22:10 3.6												
	Tu	23	2:14 -0.1	8:38 3.9	14:47 -0.3	21:08 3.7	D	F	23	3:38 -0.1	10:02 3.9	16:10 -0.3	22:34 3.7	D	S	23	4:10 0.0	10:34 3.7	16:40 -0.1	23:04 3.6												
	W	24	3:08 -0.2	9:30 3.9	15:40 -0.3	22:02 3.7		S	24	4:32 -0.1	10:55 3.8	17:02 -0.2	23:26 3.6	E	M	24	5:05 0.1	11:28 3.6	17:32 0.0	23:56 3.5												
	Th	25	4:00 -0.2	10:25 4.0	16:32 -0.3	22:54 3.7		S	25	5:25 0.0	11:50 3.7	17:55 -0.1			Tu	25	6:00 0.2	12:22 3.4	18:24 0.2													
D	F	26	4:54 -0.2	11:17 3.9	17:25 -0.2	23:48 3.7	E	M	26	6:20 3.5	12:40 0.1	18:45 0.1			W	26	6:50 2.4	13:15 0.3	19:15 3.3	19:15 0.3												
	S	27	5:46 -0.1	12:10 3.8	18:15 -0.2			Tu	27	1:14 3.4	7:14 0.2	13:39 3.4	19:40 0.2		Th	27	1:40 3.3	7:44 0.4	14:08 3.1	20:05 0.5												
	S	28	6:40 3.6	6:40 0.0	13:04 3.6	19:10 0.0		W	28	2:06 3.3	8:08 0.4	14:34 3.2	20:30 0.4		F	28	2:30 3.2	8:34 0.5	15:00 3.0	20:47 0.6												
	M	29	1:35 3.4	7:34 0.1	14:00 3.5	20:04 0.2		Th	29	2:58 3.2	9:00 0.5	15:29 3.0	21:20 0.6	A	S	29	3:14 3.1	9:20 0.5	15:46 2.8	21:33 0.7												
	Tu	30	2:30 3.3	8:27 0.3	14:56 3.3	20:56 0.4		F	30	3:48 3.1	9:54 0.6	16:20 2.9	22:08 0.7		S	30	4:00 3.1	10:05 0.7	16:30 2.7	22:10 0.8												
E	W	31	3:22 3.2	9:24 0.4	15:55 3.2	21:50 0.5							○	M	31	4:44 3.0	10:46 0.7	17:10 2.7	22:50 0.8													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 1.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is New Zealand Standard, for the meridian 172° 30' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY															
Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.											
W.	Mo.									W.	Mo.														
	M	1	4:51 0.7	11:25 8.7	17:25 1.0	23:51 8.0				D	Th	1	0:00 7.7	6:38 1.4	12:20 7.8	18:05 1.4	A	Th	1	4:28 1.0	10:57 8.1	16:42 0.9	22:20 7.8		
E	Tu	2	5:40 1.2	12:15 8.3	18:13 1.3					A	F	2	0:46 7.4	6:17 1.7	13:04 7.8	18:47 1.6	F	2	4:57 1.3	11:35 7.7	17:18 1.1				
D	W	3	0:42 7.6	6:26 1.6	13:06 7.9	19:02 1.6					S	3	1:35 7.1	7:00 2.1	13:50 7.0	19:31 1.8	D	S	3	0:00 7.5	5:33 1.6	12:13 7.8	17:59 1.3		
	Th	4	1:35 7.3	7:14 2.0	13:55 7.5	19:50 1.9					S	4	2:26 6.9	7:50 2.8	14:41 6.8	20:22 1.9		S	4	0:43 7.3	6:12 1.7	12:57 7.0	18:42 1.5		
A	F	5	2:30 7.1	8:04 2.3	14:47 7.2	20:40 2.0					M	5	3:22 6.9	8:46 2.4	15:36 6.7	21:19 1.9		M	5	1:32 7.1	7:02 1.9	13:46 6.8	19:32 1.7		
	S	6	3:22 7.0	8:58 2.5	15:39 7.0	21:31 2.1				N	Tu	6	4:10 7.1	9:46 2.3	16:33 6.9	22:15 1.7		N	Tu	6	2:30 7.0	7:59 2.0	14:45 6.7	20:31 1.6	
	S	7	4:14 7.0	9:54 2.6	16:20 7.0	22:21 1.9					W	7	5:00 7.4	10:48 2.1	17:27 7.2	23:14 1.4		W	7	3:29 7.0	9:02 2.1	15:50 6.8	21:32 1.6		
	M	8	5:08 7.2	10:47 2.4	17:17 7.1	23:05 1.7					Th	8	5:59 7.8	11:43 1.7	18:15 7.6			Th	8	4:30 7.3	10:06 1.9	16:51 7.2	22:37 1.4		
	Tu	9	5:50 7.6	11:33 2.1	18:00 7.3	23:49 1.8				O	F	9	0:05 1.0	6:46 8.3	12:32 1.2	18:03 8.0		F	9	5:26 7.3	11:12 1.5	17:48 7.7	23:36 1.0		
N	W	10	0:31 7.9	7:14 1.7	13:00 7.6						S	10	0:53 0.5	7:30 8.7	13:22 0.7	18:48 8.4		S	10	6:18 8.3	12:07 0.9	18:40 8.2			
C	Th	11	0:31 1.0	7:14 8.2	13:00 1.3	19:28 7.9					S	11	1:40 0.2	8:15 9.1	14:07 0.2	20:35 8.7		O	S	11	0:30 0.5	7:06 8.8	12:58 0.4	19:27 8.7	
	F	12	1:15 0.6	7:55 8.5	13:43 1.0	20:08 8.1					M	12	2:26 -0.1	9:00 9.3	14:54 -0.1	21:20 8.9		E	M	12	1:20 0.1	7:51 9.2	13:45 -0.1	20:13 9.1	
	S	13	1:58 0.8	8:37 8.8	14:25 0.6	20:51 8.8				E	Tu	13	3:11 -0.2	9:45 9.4	15:40 -0.2	22:07 9.0		P	Tu	13	2:07 -0.2	8:38 9.5	14:32 -0.4	21:00 9.3	
	S	14	2:41 0.1	9:20 9.0	15:10 0.3	21:37 8.4				P	W	14	3:57 -0.2	10:30 9.2	16:25 -0.2	22:55 8.9		W	14	2:54 -0.4	9:24 9.6	15:21 -0.6	21:48 9.4		
	M	15	3:26 0.1	10:06 9.0	15:56 0.2	22:23 8.4					Th	15	4:45 0.0	11:20 9.0	17:14 0.0	23:47 8.7		Th	15	3:41 -0.3	10:10 9.4	16:07 -0.4	22:38 9.3		
	Tu	16	4:12 0.1	10:50 8.9	16:48 0.2	23:14 8.4				C	F	16	5:25 0.4	12:10 8.6	18:05 0.3			F	16	4:30 -0.1	11:00 9.1	16:55 -0.2	23:30 9.0		
E	W	17	5:01 0.8	11:39 8.7	17:34 0.3						S	17	6:04 8.4	12:58 0.8	18:08 8.2	19:02 0.7		C	S	17	5:20 0.3	11:55 8.6	17:48 0.3		
C	Th	18	0:07 8.2	5:51 0.6	12:31 8.4	18:27 0.5					S	18	1:48 8.1	7:30 1.3	14:10 7.9	20:05 1.0		S	S	18	0:25 8.6	6:15 0.6	12:50 8.2	18:45 0.7	
	F	19	1:03 8.1	6:47 0.9	13:28 8.1	19:23 0.7				S	M	19	2:51 7.9	8:40 1.6	15:19 7.8	21:13 1.2		M	19	1:30 8.2	7:19 1.3	13:55 7.8	19:50 1.2		
P	S	20	2:07 7.9	7:48 1.2	14:30 7.9	20:26 0.9					Tu	20	3:58 8.0	9:59 1.7	16:25 7.8	22:26 1.2		Tu	20	2:38 8.0	8:33 1.7	15:02 7.7	21:02 1.4		
	S	21	3:11 8.0	8:55 1.5	15:35 7.9	21:32 1.0					W	21	5:01 8.2	11:11 1.5	17:29 8.1	23:32 1.0		W	21	3:40 8.0	9:50 1.7	16:18 7.8	22:15 1.4		
	M	22	4:15 8.1	10:09 1.5	16:40 8.1	22:40 0.8					Th	22	6:00 8.5	12:12 1.2	18:24 8.4			Th	22	4:44 8.1	11:00 1.5	17:13 7.9	23:22 1.2		
S	Tu	23	5:16 8.4	11:19 1.3	17:40 8.3	23:41 0.6				●	F	23	0:29 0.7	6:50 8.8	13:05 0.9	19:15 8.6		F	23	5:40 8.4	11:57 1.2	18:07 8.2			
	W	24	6:18 8.8	12:20 1.0	18:37 8.6						S	24	1:20 0.5	7:39 9.1	13:47 0.7	20:00 8.7		S	24	0:15 1.0	6:30 8.6	12:46 1.0	18:57 8.4		
●	Th	25	0:38 0.4	7:06 9.1	13:15 0.7	19:30 8.8					S	25	2:02 0.4	8:22 9.2	14:28 0.5	20:44 8.8		●	S	25	1:01 0.8	7:18 8.3	13:26 0.8	19:40 8.6	
	F	26	1:29 0.2	7:57 9.3	14:02 0.6	20:19 8.9				E	M	26	2:42 0.4	9:05 9.1	15:05 0.5	21:23 8.6		M	26	1:42 0.7	8:00 8.3	14:02 0.7	20:20 8.6		
	S	27	2:15 0.1	8:41 9.4	14:48 0.4	21:05 8.8					Tu	27	3:17 0.6	9:42 8.9	15:38 0.6	22:02 8.4		Tu	27	2:17 0.8	8:37 8.7	14:32 0.7	20:56 8.5		
	S	28	3:02 0.2	9:28 9.3	15:30 0.5	21:48 8.7					W	28	3:50 0.8	10:20 8.5	16:10 0.8	22:40 8.2		W	28	2:49 0.8	9:12 8.5	15:02 0.7	21:31 8.4		
	M	29	3:41 0.4	10:10 9.1	16:10 0.6	22:33 8.4												A	Th	29	3:19 0.9	9:47 8.3	15:32 0.7	22:08 8.2	
E	Tu	30	4:21 0.7	10:55 8.7	16:50 0.8	23:17 8.1												F	30	3:47 0.1	10:20 7.9	16:02 0.8	22:42 8.0		
	W	31	5:00 1.0	11:37 8.3	17:25 1.1													S	31	4:21 1.1	10:55 7.6	16:40 0.9	23:20 7.7		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 4.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is New Zealand Standard, for the meridian 175° 30' E., 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p.m.

●, new moon; D, 1st. quar.; C, full moon; Q, 3d. quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.				
Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.			Moon.	Day of—	Time and Height of High and Low Water.		
	W. Mo.					W. Mo.					W. Mo.			
N D	S 1	5:00	11:32	17:20	D	Tu 1	5:18	11:48	17:35	E	F 1	0:50	6:40	13:17
		1.2	7.4	1.0			1.1	7.3	1.0			7.9	0.9	7.5
	M 2	0:02	5:42	12:19		W 2	0:20	6:07	12:40		S 2	1:43	7:38	14:15
		7.5	1.4	7.1			7.6	1.2	7.2			7.9	0.9	7.6
	Tu 3	0:50	6:31	13:08		Th 3	1:14	7:01	13:38		S 3	2:42	8:38	15:18
W		7.3	1.6	6.9	F		7.5	1.3	7.2	M		8.0	0.8	7.9
	W 4	1:44	7:27	14:07		F 4	2:10	8:01	14:41		4	3:42	9:38	16:18
		7.2	1.7	6.9			7.6	1.2	7.3			8.1	0.6	8.2
	Th 5	2:48	8:27	15:10		S 5	3:12	9:05	15:45		Tu 5	4:41	10:49	17:17
		7.2	1.7	7.0	E		7.7	1.1	7.6	P		8.4	0.3	8.6
F	F 6	3:45	9:32	16:15		S 6	4:13	10:06	16:45		W 6	5:40	11:35	18:15
		7.5	1.5	7.4			8.0	0.8	8.1			8.7	0.0	9.0
	S 7	4:45	10:36	17:14		M 7	5:10	11:06	17:41		Th 7	0:05	6:33	12:30
		7.9	1.1	7.9			8.4	0.4	8.6			0.4	9.0	-0.3
	S 8	5:41	11:35	18:08	O	Tu 8	6:04	12:00	18:35	S	F 8	1:02	7:27	13:23
E		8.4	0.6	8.4			8.8	-0.1	9.1			0.2	9.1	0.5
	M 9	6:38	12:29	19:00		W 9	0:27	6:58	12:53		S 9	1:55	8:20	14:17
		8.9	0.1	9.0			0.1	9.2	-0.4			0.0	9.2	-0.5
	Tu 10	0:53	7:22	13:18		Th 10	1:30	7:49	13:43		S 10	2:50	9:12	15:08
P		0.0	9.3	-0.4	S		-0.1	9.4	-0.6	M		0.0	9.1	-0.3
	W 11	1:43	8:10	14:07		F 11	2:12	8:38	14:34		11	3:42	10:05	16:00
		-0.3	9.5	-0.6			-0.3	9.4	-0.7			0.1	8.9	-0.1
	Th 12	2:32	8:59	14:55		S 12	3:02	9:30	15:24	C	Tu 12	4:35	11:00	16:52
		-0.4	9.6	-0.7	C		-0.2	9.3	-0.5			0.4	8.6	0.3
S	F 13	3:20	9:49	15:42		S 13	3:56	10:21	16:15		W 13	5:30	11:57	17:48
		-0.4	9.4	-0.6			0.0	9.0	-0.2			0.7	8.3	0.8
	S 14	4:10	10:39	16:33		M 14	4:50	11:17	17:09	E	Th 14	0:23	6:27	12:53
		-0.1	9.1	-0.3			0.3	8.6	0.3			8.7	1.0	8.0
	S 15	5:02	11:33	17:26	C	Tu 15	5:46	12:17	18:06		F 15	1:20	7:23	13:52
C		0.3	8.6	0.2			0.7	8.2	0.8			8.8	1.3	7.7
	M 16	0:05	6:00	12:32		W 16	0:47	6:48	13:18		S 16	2:15	8:20	14:50
		8.8	0.8	8.2			8.5	1.1	7.9			8.0	1.5	7.5
	Tu 17	1:05	7:02	13:36	E	Th 17	1:47	7:53	14:22		S 17	3:11	9:16	15:46
W		8.4	1.2	7.8			8.2	1.4	7.7	A		7.7	1.7	7.4
	W 18	2:10	8:15	14:45		F 18	2:48	9:00	15:25		M 18	4:08	10:05	16:40
		8.1	1.6	7.6			8.0	1.6	7.6			7.6	1.7	7.4
	Th 19	3:16	9:27	15:50	E	S 19	3:47	10:00	16:22		Tu 19	4:53	10:52	17:25
		8.0	1.7	7.6			7.9	1.6	7.6			7.5	1.7	7.5
F	F 20	4:18	10:33	16:50		S 20	4:41	10:53	17:16	N	W 20	5:38	11:33	18:09
		8.0	1.5	7.8			7.9	1.5	7.7			7.5	1.6	7.7
	S 21	5:13	11:32	17:43		M 21	5:30	11:38	18:01		Th 21	0:00	6:20	12:11
		8.1	1.3	8.0			7.9	1.4	7.9			2.1	7.5	1.4
	S 22	6:05	12:16	18:31	A	Tu 22	0:04	6:16	12:15	●	F 22	0:32	7:00	12:44
C		8.3	1.2	8.1			1.8	7.9	1.3			1.9	7.5	1.2
	M 23	0:35	6:48	12:52		W 23	0:40	6:56	12:50		S 23	1:07	7:38	13:20
		1.3	8.3	1.1			1.7	7.9	1.2			1.6	7.6	0.9
	Tu 24	1:13	7:28	13:24	N	Th 24	1:10	7:32	13:20		S 24	1:45	8:16	13:59
A		1.2	8.3	1.0			1.6	7.8	1.0	M		1.3	7.7	0.7
	W 25	1:42	8:04	13:54		F 25	1:40	8:07	13:50		25	2:25	8:55	14:40
		1.2	8.3	0.9			1.4	7.8	0.9			1.0	7.8	0.5
	Th 26	2:10	8:40	14:22	S	S 26	2:12	8:41	14:25		Tu 26	3:08	9:38	15:22
		1.2	8.1	0.8			1.2	7.8	0.7	W		0.8	7.9	0.5
F	F 27	2:42	9:11	14:55		S 27	2:49	9:19	15:04		27	3:52	10:20	16:09
		1.1	8.0	0.7			1.1	7.7	0.6			0.6	7.9	0.5
	S 28	3:15	9:45	15:30	M	28	3:30	9:56	15:43		Th 28	4:39	11:08	16:55
		1.0	7.8	0.7			0.9	7.7	0.7			0.5	7.9	0.6
	S 29	3:51	10:21	16:08		Tu 29	4:12	10:39	16:27	D	F 29	5:28	12:00	17:44
N		1.0	7.6	0.7			0.9	7.6	0.7			0.5	7.9	0.7
	M 30	4:32	11:02	16:50		W 30	4:58	11:27	17:13		S 30	0:28	6:20	12:54
		1.1	7.4	0.9			0.9	7.5	0.8			8.3	0.5	7.9
				7.8		Th 31	5:48	12:19	18:04					18:37
							0.9	7.5	1.0					0.9

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 4.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is New Zealand Standard for the meridian 172° 30' E.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
P	S 1	1:20 8.1	7:13 0.6	18:15 7.9	19:34 1.0	P	W 1	2:55 7.9	8:50 0.8	15:35 8.0	21:20 1.3	O	S 1	4:52 7.9	10:51 1.0	17:26 8.4	23:32 1.2
	M 2	2:15 8.1	8:12 0.6	14:52 8.0	20:35 1.1		S Th 2	3:59 8.0	9:55 0.8	16:40 8.3	22:30 1.3		S 2	5:52 8.3	11:53 0.8	18:21 8.7	23:32 1.2
	Tu 3	3:15 8.1	9:12 0.6	15:54 8.2	21:39 1.1		F 3	5:02 8.1	11:00 0.7	17:40 8.6	23:37 1.1		M 3	0:30 0.9	6:46 8.6	12:46 0.6	19:11 9.0
S	W 4	4:17 8.2	10:15 0.5	16:55 8.5	22:43 1.0	O	S 4	6:01 8.4	12:01 0.4	18:35 9.0	21:50 1.3	E	Tu 4	1:17 0.6	7:35 8.8	13:34 0.4	19:57 9.2
	Th 5	5:17 8.4	11:14 0.3	17:56 8.9	23:47 0.8		S 5	0:38 0.8	6:58 8.7	12:57 0.2	19:28 9.2		W 5	2:00 0.4	8:20 8.9	14:15 0.3	20:40 9.2
	F 6	6:15 8.7	12:12 0.0	18:50 9.2	23:47 0.8		M 6	1:30 0.5	7:50 8.9	13:48 0.1	20:18 9.4		Th 6	2:40 0.8	9:02 8.8	14:54 0.4	21:22 9.0
C	S 7	0:47 0.5	7:10 8.9	13:08 —0.1	19:42 9.5	C	Tu 7	2:20 0.3	8:39 8.9	14:35 0.1	21:05 9.4	A	F 7	3:16 0.4	9:44 8.7	15:32 0.6	22:00 8.7
	S 8	1:42 0.3	8:05 9.0	14:05 —0.2	20:34 9.6		W 8	3:05 0.3	9:26 8.9	15:20 0.2	21:50 9.3		S 8	3:52 0.5	10:24 8.4	16:09 0.9	22:41 8.3
	M 9	2:35 0.2	8:56 9.0	14:52 —0.1	21:25 9.5		Th 9	3:49 0.4	10:12 8.7	16:05 0.5	22:35 9.0		S 9	4:29 0.8	11:05 8.1	16:45 1.2	23:21 7.9
A	Tu 10	3:25 0.2	9:47 8.9	15:40 0.1	22:15 9.4	N	F 10	4:30 0.5	10:58 8.4	16:45 0.8	23:20 8.6	C	M 10	5:06 1.1	11:46 7.7	17:24 1.5	23:21 7.9
	W 11	4:15 0.4	10:38 8.7	16:30 0.4	23:04 9.1		S 11	5:11 0.8	11:43 8.0	17:25 1.2	23:20 8.6		Tu 11	0:08 7.4	5:48 1.3	12:31 7.3	18:05 1.8
	Th 12	5:04 0.6	11:30 8.4	17:20 0.8	23:53 8.7		S 12	0:04 8.1	5:52 1.1	12:32 7.6	18:08 1.6		W 12	0:51 7.0	6:30 1.6	13:20 7.1	18:52 2.0
E	F 13	5:58 0.9	12:21 8.0	18:07 1.2	23:56 8.7	A	M 13	0:50 7.6	6:35 1.4	13:20 7.3	18:50 2.0	N	Th 13	1:39 6.8	7:19 1.8	14:15 6.9	19:47 2.2
	S 14	0:43 8.2	6:41 1.2	13:15 7.7	18:56 1.7		Tu 14	1:37 7.2	7:21 1.7	14:12 7.0	19:40 2.3		F 14	2:34 6.6	8:13 1.9	15:11 6.9	20:45 2.2
	S 15	1:35 7.8	7:32 1.5	14:07 7.4	19:48 2.1		W 15	2:28 6.9	8:12 1.9	15:06 6.9	20:30 2.4		S 15	3:32 6.7	9:12 1.8	16:08 7.1	21:46 2.0
A	M 16	2:26 7.5	8:19 1.8	15:01 7.2	20:42 2.4	N	Th 16	3:21 6.8	9:01 2.0	16:00 7.0	21:28 2.4	M	S 16	4:31 7.0	10:12 1.6	17:03 7.5	22:46 1.6
	Tu 17	3:18 7.2	9:11 1.9	15:55 7.1	21:32 2.5		F 17	4:15 6.8	9:56 1.9	16:52 7.2	22:28 2.2		M 17	5:24 7.5	11:10 1.2	17:53 8.0	23:41 1.1
	W 18	4:09 7.1	9:58 1.9	16:45 7.2	22:25 2.5		S 18	5:08 7.0	10:50 1.6	17:40 7.5	23:21 1.9		Tu 18	6:15 8.0	12:02 0.8	18:40 8.5	23:41 1.1
N	Th 19	4:58 7.1	10:44 1.8	17:30 7.4	23:13 2.3	●	S 19	5:57 7.4	11:40 1.2	18:25 7.9	23:21 1.9	●	W 19	0:30 0.5	7:01 8.5	12:52 0.3	19:25 9.0
	F 20	5:45 7.2	11:28 1.5	18:15 7.7	23:56 2.0		● M 20	0:09 1.4	6:42 7.8	12:30 0.8	19:11 8.4		Th 20	1:17 0.0	7:47 8.9	13:38 —0.1	20:10 9.3
	S 21	6:27 7.4	12:10 1.2	18:56 8.0	23:56 2.0		Tu 21	0:56 0.9	7:28 8.2	13:15 0.4	19:52 8.8		F 21	2:03 —0.4	8:34 9.2	14:25 —0.3	20:55 9.4
●	S 22	0:38 1.6	7:10 7.6	12:58 0.9	19:37 8.3	E	W 22	1:42 0.4	8:10 8.5	14:00 0.1	20:35 9.1	P	S 22	2:49 —0.5	9:20 9.4	15:10 —0.3	21:42 9.3
	M 23	1:21 1.1	7:51 7.9	13:36 0.6	20:18 8.5		Th 23	2:27 0.0	8:55 8.8	14:45 —0.1	21:20 9.2		S 23	3:35 —0.5	10:08 9.3	15:58 —0.2	22:30 9.1
	Tu 24	2:05 0.8	8:33 8.1	14:20 0.4	21:00 8.7		F 24	3:14 —0.2	9:40 8.9	15:30 —0.1	22:05 9.1		M 24	4:24 —0.3	10:58 9.0	16:49 0.1	23:22 8.7
W	W 25	2:48 0.4	9:16 8.2	15:03 0.2	21:43 8.8	S	S 25	3:58 —0.2	10:28 8.9	16:18 0.0	22:51 9.0	D	Tu 25	5:15 0.1	11:53 8.7	17:42 0.6	23:22 8.7
	Th 26	3:32 0.2	10:01 8.4	15:49 0.2	22:27 8.8		S 26	4:45 —0.1	11:20 8.7	17:05 0.3	23:41 8.6		S W 26	0:17 8.3	6:10 0.5	12:52 8.3	18:42 1.1
	F 27	4:19 0.1	10:48 8.4	16:35 0.3	23:13 8.7		● M 27	5:35 0.1	12:12 8.4	17:58 0.6	23:41 8.6		Th 27	1:20 7.9	7:10 1.0	13:57 8.1	19:48 1.4
E	S 28	5:06 0.2	11:39 8.3	17:25 0.5	23:56 8.7	D	Tu 28	0:35 8.3	6:28 0.4	13:10 8.2	18:55 1.0	S	F 28	2:27 7.7	8:18 1.3	15:05 7.9	21:07 1.6
	● S 29	0:02 8.5	5:58 0.3	12:32 8.2	18:16 0.7		W 29	1:35 8.0	7:27 0.8	14:15 8.0	19:59 1.3		S 29	3:36 7.7	9:34 1.4	16:10 8.1	22:18 1.5
	M 30	0:58 8.3	6:51 0.4	13:30 8.0	19:12 1.0		S Th 30	2:39 7.8	8:33 1.1	15:20 8.0	21:10 1.6		S 30	4:42 7.9	10:43 1.3	17:10 8.3	23:22 1.2
D	Tu 31	1:53 8.1	7:47 0.6	14:30 8.0	20:15 1.2	D	F 31	3:47 7.8	9:43 1.2	16:25 8.1	22:24 1.5						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of sounding on the Admiralty Charts for this region, and which is 4.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is New Zealand Standard, for the Meridian 172° 30' E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.





JANUARY.					FEBRUARY.					MARCH.				
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.	
	W.	Mo.				W.	Mo.				W.	Mo.		
E	M	1	0:45 3.1	6:28 1.2	D	Th	1	1:31 3.3	7:38 1.2	A	Th	1	6:02 0.8	12:10 3.3
	Tu	2	1:46 3.0	7:30 1.3		F	2	2:22 3.3	8:35 1.3		F	2	0:35 3.4	6:50 0.9
D	W	3	2:35 3.1	8:35 1.3	S	S	3	3:18 3.3	9:40 1.2	D	S	3	1:25 3.4	7:48 1.0
	Th	4	3:25 3.2	9:40 1.3		S	4	4:11 3.5	10:43 1.1		S	4	2:21 3.4	8:52 1.1
A	F	5	4:16 3.3	10:41 1.2	M	M	5	5:05 3.7	11:41 0.9	M	M	5	3:22 3.5	10:00 1.0
	S	6	5:01 3.5	11:32 1.1	N	Tu	6	5:55 4.0	12:30 0.6		Tu	6	4:24 3.7	11:02 0.8
S	S	7	5:45 3.8	12:16 0.9	W	W	7	0:16 0.8	6:48 4.3	W	W	7	5:21 3.9	12:00 0.5
	M	8	0:02 0.8	6:28 4.0	Th	Th	8	1:03 0.7	7:28 4.5		Th	8	6:13 4.2	12:49 0.2
N	Tu	9	0:42 0.8	7:10 4.3	C	F	9	1:49 0.5	8:12 4.7	F	F	9	0:45 0.6	7:05 4.5
	W	10	1:23 0.7	7:50 4.5		S	10	2:32 0.4	8:58 4.8		S	10	1:35 0.3	7:50 4.7
C	Th	11	2:00 0.7	8:30 4.6	S	S	11	3:17 0.3	9:41 4.7	C	S	11	2:21 0.1	8:38 4.7
	F	12	2:40 0.7	9:14 4.7	M	M	12	4:03 0.3	10:27 4.6		M	12	3:06 0.0	9:25 4.7
S	S	13	3:22 0.7	9:58 4.6	E	Tu	13	4:54 0.4	11:15 4.3	P	Tu	13	3:55 0.0	10:10 4.5
	S	14	4:07 0.7	10:43 4.5	P	W	14	5:50 0.5	12:07 4.0		W	14	4:45 0.0	11:00 4.2
M	M	15	4:57 0.8	11:31 4.3	Th	Th	15	0:37 3.7	6:47 0.6	Th	Th	15	5:37 0.1	11:52 8.9
	Tu	16	0:12 3.4	5:55 0.8	C	F	16	1:35 3.6	7:55 0.7		F	16	0:15 3.9	6:38 0.3
E	W	17	1:05 3.4	7:00 0.9	S	S	17	2:40 3.6	9:10 0.8	C	S	17	1:10 3.8	7:44 0.5
	Th	18	2:05 3.5	8:15 0.9	S	S	18	3:46 3.8	10:30 0.7		S	18	2:15 3.8	8:57 0.6
P	F	19	3:10 3.6	9:25 0.8	M	M	19	4:50 4.0	11:40 0.6	M	M	19	3:23 4.3	10:14 0.7
	S	20	4:10 3.8	10:40 0.7	Tu	Tu	20	5:50 4.2	12:40 0.5		Tu	20	4:30 3.9	11:23 0.6
S	S	21	5:11 4.0	11:50 0.5	W	W	21	0:28 0.7	6:43 4.4	W	W	21	5:32 4.0	12:20 0.5
	M	22	6:07 4.3	12:50 0.3	Th	Th	22	1:18 0.5	7:31 4.5		Th	22	0:17 0.7	6:25 4.1
S	Tu	23	0:40 0.5	6:59 4.6	F	F	23	2:02 0.4	8:15 4.6	F	F	23	1:05 0.6	7:13 4.2
	W	24	1:29 0.4	7:47 4.8	S	S	24	2:43 0.4	8:57 4.5		S	24	1:50 0.5	7:56 4.2
●	Th	25	2:15 0.4	8:33 4.8	S	S	25	3:23 0.4	9:35 4.4	●	S	25	2:29 0.4	8:38 4.1
	F	26	2:59 0.4	9:17 4.8	E	M	26	4:03 0.5	10:15 4.1		M	26	3:04 0.4	9:15 4.0
S	S	27	3:41 0.5	10:00 4.6	Tu	Tu	27	4:40 0.6	10:53 3.9	Tu	Tu	27	3:41 0.4	9:50 8.9
	S	28	4:23 0.6	10:41 4.4	W	W	28	5:23 0.7	11:30 3.6		W	28	4:19 0.4	10:25 3.7
M	M	29	5:07 0.8	11:23 4.0	E	Th	29	6:00 0.5	12:05 3.5	A	Th	29	4:50 0.5	10:57 3.5
	Tu	30	0:05 3.3	5:53 0.9		F	30	5:34 0.6	11:34 3.3		F	30	5:34 0.6	11:34 3.3
W	W	31	0:45 3.3	6:43 1.1		S	31	6:20 0.7	12:17 3.1		S	31	6:20 0.7	12:17 3.1

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 150th meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
N	S	1	0:40 3.6	7:14 0.7	13:08 2.9	18:50 1.3	D	Tu	1	1:02 3.7	7:48 0.5	13:50 2.9	19:15 1.4	E	F	1	2:38 3.7	9:16 0.3	15:35 3.3	21:30 1.0												
	M	2	1:36 3.5	8:11 0.8	14:16 2.8	19:52 1.4		W	2	2:02 3.6	8:50 0.5	15:02 2.9	20:36 1.3		S	2	3:44 3.7	10:10 0.3	16:32 3.6	22:42 0.7												
	Tu	3	2:38 3.5	9:22 0.7	15:32 2.8	21:09 1.3		Th	3	3:08 3.7	9:50 0.4	16:09 3.1	21:56 1.1		S	3	4:50 3.7	11:04 0.3	17:26 3.9	23:41 0.4												
	W	4	3:43 3.6	10:25 0.6	16:44 3.0	22:25 1.1		F	4	4:13 3.8	10:47 0.3	17:06 3.4	23:06 0.8		M	4	5:52 3.8	12:00 0.2	18:17 4.2													
	Th	5	4:46 3.8	11:24 0.4	17:43 3.3	23:30 0.8		S	5	5:16 3.9	11:40 0.2	17:57 3.8			Tu	5	0:39 0.1	6:50 3.8	12:50 0.2	19:07 4.6												
E	F	6	5:44 4.1	12:16 0.1	18:33 3.6		P	S	6	0:06 0.4	6:15 4.1	12:29 0.1	18:45 4.1	O	W	6	1:35 -0.2	7:45 3.8	13:38 0.2	19:55 4.8												
	S	7	0:27 0.5	6:38 4.3	13:03 -0.1	19:18 3.9		M	7	0:59 0.1	7:10 4.1	13:21 0.0	19:33 4.4		Th	7	2:25 -0.3	8:37 3.7	14:24 0.2	20:44 4.9												
	S	8	1:19 0.2	7:32 4.5	13:48 -0.2	20:00 4.2		Tu	8	1:47 -0.2	8:00 4.2	14:05 0.0	20:18 4.6		S	8	3:19 -0.4	9:30 3.6	15:10 0.4	21:32 4.9												
	M	9	2:07 -0.1	8:20 4.5	14:33 -0.2	20:45 4.4		W	9	2:38 -0.4	8:52 4.1	14:48 0.1	21:04 4.8		S	9	4:10 -0.4	10:21 3.4	16:00 0.5	22:22 4.8												
	Tu	10	2:55 -0.2	9:08 4.5	15:18 -0.1	21:23 4.4		Th	10	3:30 -0.5	9:43 3.9	15:33 0.3	21:50 4.8		S	10	5:00 -0.3	11:17 3.3	16:50 0.7	23:12 4.6												
S	W	11	3:42 -0.3	9:55 4.3	16:00 0.1	22:13 4.5	S	F	11	4:22 -0.4	10:35 3.7	16:18 0.5	22:40 4.6	C	Tu	11	5:55 -0.1	12:14 3.1	17:44 0.9													
	Th	12	4:33 -0.3	10:47 4.0	16:48 0.3	23:00 4.4		S	12	5:17 -0.3	11:31 3.4	17:08 0.7	23:32 4.4		W	12	0:05 4.3	6:50 0.1	13:15 3.0	18:45 1.1												
	F	13	5:27 -0.1	11:42 3.6	17:31 0.7	23:51 4.2		S	13	6:13 -0.1	12:33 3.1	18:02 1.0			Th	13	1:00 4.0	7:42 0.3	14:16 3.0	19:50 1.2												
	S	14	6:27 0.1	12:43 3.8	18:25 1.0			M	14	0:28 4.2	7:13 0.2	13:43 3.0	19:07 1.2		Th	14	1:55 3.7	8:36 0.5	15:15 3.1	21:02 1.2												
	S	15	0:47 4.0	7:31 0.3	13:56 3.0	19:30 1.2		Tu	15	1:27 4.0	8:15 0.4	14:57 2.9	20:20 1.2		F	15	3:00 3.5	9:28 0.6	16:04 3.2	22:10 1.2												
C	M	16	1:51 3.9	8:40 0.5	15:17 2.9	20:43 1.2	C	W	16	2:30 3.8	9:17 0.5	16:01 3.0	21:33 1.2	E	S	16	4:08 3.3	10:16 0.7	16:48 3.4	23:07 1.1												
	Tu	17	2:58 3.8	9:49 0.6	16:35 2.9	21:58 1.2		Th	17	3:33 3.6	10:14 0.6	16:56 3.2	22:43 1.1		S	17	5:00 3.1	11:03 0.8	17:30 3.6	23:58 1.0												
	W	18	4:06 3.8	10:53 0.6	17:33 3.1	23:06 1.0		F	18	4:37 3.5	11:04 0.6	17:35 3.3	23:40 1.0		M	18	5:50 3.1	11:47 0.8	18:10 3.7													
	Th	19	5:07 3.8	11:40 0.5	18:18 3.3			S	19	5:37 3.6	11:48 0.6	18:11 3.5			Tu	19	0:41 0.9	6:34 3.1	12:25 0.7	18:47 3.9												
	F	20	0:02 0.8	6:02 3.8	12:31 0.4	18:53 3.5		S	20	0:27 0.8	6:26 3.4	12:30 0.6	18:46 3.7		W	20	1:20 0.7	7:15 3.1	13:00 0.8	19:20 4.1												
E	S	21	0:50 0.7	6:53 3.8	13:08 0.4	19:25 3.7	A	M	21	1:07 0.7	7:07 3.4	13:06 0.6	19:20 3.9	N	Th	21	1:55 0.5	7:50 3.1	13:32 0.8	19:58 4.3												
	S	22	1:32 0.5	7:37 3.8	13:48 0.4	20:00 3.8		Tu	22	1:44 0.6	7:45 3.3	13:37 0.6	19:51 4.0		F	22	2:33 0.3	8:26 3.1	14:05 0.8	20:36 4.4												
	M	23	2:10 0.4	8:12 3.8	14:17 0.4	20:28 3.9		W	23	2:17 0.4	8:17 3.8	14:05 0.7	20:25 4.1		S	23	3:10 0.2	9:05 3.1	14:38 0.9	21:15 4.4												
	Tu	24	2:42 0.4	8:47 3.6	14:45 0.5	20:55 4.0		Th	24	2:52 0.3	8:50 3.2	14:33 0.8	21:00 4.2		S	24	3:52 0.0	9:44 3.1	15:15 0.9	21:56 4.4												
	W	25	3:15 0.3	9:19 3.5	15:12 0.6	21:28 4.0		F	25	3:31 0.2	9:24 3.2	15:02 0.8	21:37 4.2		M	25	4:35 0.0	10:28 3.2	15:55 0.9	22:40 4.3												
N	Th	26	3:50 0.3	9:52 3.4	15:38 0.7	22:03 4.0	N	S	26	4:10 0.2	10:06 3.1	15:33 0.9	22:15 4.2	D	Tu	26	5:20 0.0	11:15 3.2	16:40 1.0	23:25 4.2												
	F	27	4:28 0.3	10:26 3.3	16:08 0.9	22:40 3.9		S	27	4:53 0.1	10:45 3.1	16:08 1.0	22:58 4.1		W	27	6:08 0.1	12:08 3.2	17:35 1.0													
	S	28	5:12 0.3	11:05 3.2	16:40 1.0	23:21 3.9		M	28	5:40 0.2	11:33 3.0	16:51 1.1	23:43 3.9		Th	28	0:17 4.0	6:57 0.2	13:02 3.2	18:40 1.1												
	S	29	5:58 0.4	11:50 3.0	17:18 1.2			Tu	29	6:30 0.2	12:28 3.0	17:46 1.2			F	29	1:12 3.8	7:48 0.3	14:00 3.3	19:52 1.0												
	M	30	0:08 3.7	6:31 0.4	12:44 2.9	18:09 1.3		W	30	0:36 3.8	7:23 0.3	13:28 3.0	19:52 1.3		S	30	2:12 3.6	8:40 0.4	15:00 3.5	21:08 0.9												
							D	Th	31	1:34 3.7	8:18 0.3	14:32 3.1	20:11 1.2																			

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The time used is Cosmopolitan Standard, 150th meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
P	S 1	3:18 3.5	9:35 0.5	16:02 3.7	22:18 0.7	P	W 1	5:25 3.2	11:14 0.7	17:35 4.2	23:00 4.5	O	S 1	1:00 0.2	7:20 3.3	12:52 0.5	19:06 4.5
	M 2	4:27 3.4	10:38 0.5	17:00 4.0	23:25 0.5		S Th 2	0:20 0.4	6:28 3.2	12:10 0.6	18:30 4.5		S 2	1:48 0.2	8:00 3.5	13:42 0.3	19:55 4.6
	Tu 3	5:34 3.5	11:35 0.5	17:54 4.3	23:25 0.5		F 3	1:14 0.2	7:27 3.3	13:02 0.4	19:22 4.7		M 3	2:27 0.0	8:40 3.6	14:24 0.3	20:37 4.6
	W 4	0:25 0.2	6:36 3.5	12:25 0.4	18:48 4.6		○ S 4	2:05 0.0	8:16 3.4	13:54 0.4	20:12 4.9		Tu 4	3:05 0.0	9:15 3.7	15:06 0.2	21:18 4.4
	Th 5	1:20 0.0	7:34 3.5	13:16 0.3	19:37 4.8		S 5	2:50 -0.1	9:00 3.5	14:40 0.3	20:58 4.8		W 5	3:40 0.1	9:50 3.7	15:48 0.3	22:00 4.2
S	F 6	2:18 -0.1	8:25 3.5	14:05 0.3	20:26 5.0	E	M 6	3:35 -0.1	9:42 3.5	15:25 0.3	21:44 4.7	Th	6	4:14 0.2	10:26 3.7	16:30 0.4	22:42 3.9
	S 7	3:06 -0.2	9:17 3.4	14:52 0.4	21:15 5.0		Tu 7	4:14 -0.1	10:24 3.5	16:10 0.4	22:26 4.5		F 7	4:55 0.4	11:06 3.7	17:15 0.6	23:22 3.6
	S 8	3:55 -0.2	10:04 3.4	15:40 0.5	22:02 4.8		W 8	4:56 0.1	11:05 3.5	16:56 0.6	23:10 4.2		S 8	5:32 0.6	11:42 3.6	17:55 0.7	23:55 4.7
	M 9	4:42 -0.2	10:54 3.3	16:30 0.6	22:50 4.6		E Th 9	5:36 0.2	11:50 3.5	17:44 0.8	23:55 3.8		S 9	0:02 3.3	6:05 0.9	12:24 3.5	18:42 0.9
	Tu 10	5:30 0.0	11:44 3.3	17:20 0.8	23:40 4.3		F 10	6:15 0.4	12:30 3.4	18:35 0.9	24:30 4.1		A M 10	0:45 3.0	6:44 1.0	13:13 3.4	19:38 1.0
E	W 11	6:15 0.1	12:35 3.2	18:15 0.9	24:30 4.1	C	S 11	0:45 3.4	6:55 0.7	13:15 3.4	19:28 1.1	C	Tu 11	1:38 2.8	7:35 1.2	14:05 3.4	20:40 1.1
	Th 12	0:28 3.9	7:02 0.3	13:25 3.2	19:12 1.1		○ S 12	1:32 3.1	7:45 0.9	14:05 3.8	20:24 1.2		W 12	2:42 2.7	8:26 1.4	15:05 3.4	21:45 1.0
	F 13	1:24 3.6	7:48 0.5	14:15 3.2	20:15 1.2		A M 13	2:25 2.9	8:32 1.1	15:00 3.8	21:28 1.2		Th 13	3:54 2.7	9:36 1.3	16:08 3.5	22:45 0.8
	S 14	2:20 3.8	8:34 0.8	15:04 3.3	21:20 1.2		Tu 14	3:26 2.7	9:28 1.2	15:55 3.4	22:30 1.1		F 14	5:00 2.8	10:36 1.2	17:00 3.8	23:40 0.6
	S 15	3:15 3.0	9:25 0.9	15:55 3.4	22:22 1.2		W 15	4:30 2.7	10:18 1.2	16:46 3.6	23:25 1.0		S 15	5:52 3.0	11:35 1.0	17:52 4.0	24:35 1.1
A	M 16	4:12 2.9	10:15 0.9	16:42 3.5	23:18 1.2	N	Th 16	5:30 2.8	11:12 1.1	17:37 3.8	24:10 1.1	S	16	0:27 0.3	6:40 3.8	12:25 0.7	18:42 4.3
	Tu 17	5:10 2.8	11:05 0.9	17:28 3.7	24:10 1.1		F 17	0:15 0.7	6:20 2.9	12:00 0.9	18:22 4.1		M 17	1:10 0.1	7:22 3.6	13:15 0.4	19:28 4.5
	W 18	0:07 1.0	6:00 2.8	11:45 0.9	18:12 3.9		S 18	1:00 0.4	7:05 3.1	12:45 0.8	19:10 4.3		● Tu 18	1:53 -0.1	8:02 3.8	14:00 0.2	20:13 4.6
	Th 19	0:50 0.8	6:46 2.9	12:26 0.9	18:52 4.1		S 19	1:42 0.2	7:46 3.3	13:30 0.6	19:52 4.5		W 19	2:34 -0.2	8:43 4.0	14:44 0.0	21:00 4.5
	F 20	1:28 0.5	7:28 3.0	13:05 0.8	19:34 4.3		● M 20	2:24 0.0	8:26 3.4	14:14 0.5	20:35 4.6		E Th 20	3:15 -0.2	9:25 4.1	15:30 0.0	21:46 4.4
●	S 21	2:08 0.3	8:06 3.1	13:45 0.8	20:15 4.5	●	Tu 21	3:04 -0.2	9:07 3.6	14:57 0.4	21:18 4.6	P	F 21	3:57 -0.1	10:10 4.2	16:20 0.0	22:35 4.2
	S 22	2:48 0.1	8:47 3.2	14:25 0.7	20:55 4.5		W 22	3:45 -0.2	9:50 3.7	15:42 0.3	22:05 4.5		S 22	4:44 0.2	10:55 4.1	17:10 0.1	23:22 3.9
	M 23	3:30 -0.1	9:28 3.3	15:05 0.7	21:37 4.5		Th 23	4:25 -0.1	10:34 3.8	16:30 0.3	22:50 4.3		S 23	5:30 0.4	11:45 4.0	18:08 0.2	23:55 4.7
	Tu 24	4:14 -0.1	10:12 3.4	15:48 0.7	22:20 4.5		F 24	5:10 0.0	11:20 3.8	17:22 0.4	23:40 4.0		M 24	0:20 3.5	6:20 0.8	12:40 3.9	19:12 0.4
	W 25	4:55 -0.1	10:55 3.4	16:38 0.7	23:08 4.3		S 25	5:54 0.3	12:05 3.8	18:16 0.5	23:50 4.3		D Tu 25	1:28 3.2	7:16 1.0	13:41 3.8	20:24 0.5
E	Th 26	5:40 0.0	11:44 3.4	17:30 0.8	23:57 4.1	D	S 26	0:30 3.8	6:44 0.5	13:00 3.7	19:20 0.6	S	W 26	2:45 2.9	8:26 1.2	14:50 3.8	21:40 0.6
	F 27	6:26 0.2	12:34 3.5	18:30 0.8	24:30 4.1		● M 27	1:34 3.4	7:44 0.8	14:04 3.7	20:32 0.7		Th 27	4:12 2.9	9:44 1.1	16:00 3.9	22:50 0.6
	S 28	0:51 3.8	7:15 0.4	13:30 3.5	19:38 0.8		Tu 28	2:48 3.1	8:47 1.0	15:15 3.8	21:52 0.7		F 28	5:24 3.0	10:53 1.0	17:04 4.0	23:48 0.4
	S 29	1:50 3.5	8:06 0.6	14:32 3.6	20:45 0.8		W 29	4:10 3.0	9:55 1.0	16:17 3.9	23:05 0.6		S 29	6:17 3.2	11:52 0.8	18:00 4.1	23:55 4.7
	M 30	2:58 3.3	9:12 0.7	15:35 3.7	22:02 0.7		S Th 30	5:25 3.0	11:00 0.9	17:18 4.1	23:50 4.3		S 30	0:38 0.3	7:00 3.4	12:45 0.5	18:50 4.2
D	Tu 31	4:14 3.2	10:12 0.8	16:35 4.0	23:12 0.6	F	31	0:10 0.4	6:27 3.2	12:00 0.7	18:15 4.3						

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●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

NOVEMBER.										DECEMBER.									
		Day of—		Time and Height of High and Low Water.		Day of—		Time and Height of High and Low Water.				Day of—		Time and Height of High and Low Water.		Day of—		Time and Height of High and Low Water.	
	Mo.	W.	Mo.	Time	Height		Mo.	W.	Mo.	Time	Height		Mo.	W.	Mo.	Time	Height		Mo.
M	1	1:20	7:37	13:28	19:35	○	Th	1	2:00	8:10	14:27	20:32	○	S	1	1:55	8:14	14:45	20:44
○	Tu	2	0.2	3.6	0.4	4.2	F	2	2:28	8:48	15:02	21:07	A	S	2	2:21	8:49	15:20	21:13
E	W	3	2:04	8:45	14:50	21:00	S	3	2:56	9:15	15:40	21:38	N	M	3	2:53	9:22	16:00	21:47
Th	4	3:06	9:17	15:28	21:35	A	S	4	3:25	9:50	16:17	22:12	N	Tu	4	3:19	10:00	16:38	22:28
F	5	3:40	9:50	16:02	22:10	N	M	5	3:53	10:25	16:58	22:50	W	5	3:50	10:40	17:20	23:10	
S	6	4:07	10:22	16:40	22:45	N	Tu	6	4:20	11:05	17:45	23:38	Th	6	4:29	11:24	18:09	23:40	
S	7	4:35	10:58	17:22	23:22	W	7	4:56	11:52	18:34	24:10	F	7	5:02	12:12	18:22	24:10		
A	M	8	5:10	11:40	18:10	Th	8	5:28	12:45	19:20	24:45	S	8	5:00	12:30	18:37	24:20		
Tu	9	5:05	12:15	18:45	19:04	○	F	9	5:52	13:40	20:26	25:15	○	S	9	5:02	13:00	18:50	24:45
N	W	10	5:56	13:00	19:18	20:02	S	10	6:20	14:42	21:25	25:45	E	M	10	5:04	13:15	19:14	24:42
○	Th	11	6:20	13:45	19:45	20:55	S	11	6:48	15:48	22:21	26:15	E	Tu	11	5:06	13:30	19:30	24:40
F	12	6:47	14:30	20:15	21:45	M	12	7:15	16:55	23:14	26:45	W	12	5:08	13:45	19:45	24:38		
S	13	7:15	15:15	20:45	22:15	E	Tu	13	7:42	17:50	24:05	27:15	Th	13	5:10	14:00	19:55	24:35	
S	14	7:42	16:00	21:15	22:45	W	14	8:10	18:55	24:35	27:45	F	14	5:12	14:15	20:05	24:32		
M	15	8:10	16:45	21:45	23:15	Th	15	8:38	19:55	25:05	28:15	S	15	5:14	14:30	20:15	24:30		
Tu	16	8:38	17:30	22:15	23:45	●	F	16	9:05	20:55	25:35	28:45	P	S	16	5:16	14:45	20:25	24:28
E	W	17	9:05	18:15	22:45	P	S	17	9:32	21:55	26:05	29:15	●	M	17	5:18	15:00	20:35	24:25
●	Th	18	9:32	19:00	23:15	S	S	18	10:00	22:55	26:35	29:45	W	18	5:20	15:15	20:45	24:22	
F	19	10:00	19:45	23:45	23:45	S	M	19	10:28	23:55	27:05	30:15	Th	19	5:22	15:30	20:55	24:20	
P	S	20	10:28	20:30	24:15	Tu	20	10:55	24:55	27:35	30:45	W	20	5:24	15:45	21:05	24:18		
S	21	10:55	21:15	24:45	24:45	W	21	11:23	25:55	28:05	31:15	F	21	5:26	16:00	21:15	24:15		
M	22	11:23	22:00	25:15	25:15	Th	22	11:50	26:55	28:35	31:45	S	22	5:28	16:15	21:25	24:12		
S	Tu	23	11:50	22:30	25:45	○	F	23	12:18	27:55	29:05	32:15	○	S	23	5:30	16:30	21:35	24:10
○	W	24	12:18	23:00	26:15	S	24	12:45	28:55	29:35	32:45	E	M	24	5:32	16:45	21:45	24:08	
Th	25	12:45	23:30	26:45	26:45	S	25	13:13	29:55	30:05	33:15	Tu	25	5:34	17:00	21:55	24:05		
F	26	13:13	24:00	27:15	27:15	E	M	26	13:40	30:55	30:35	33:45	W	26	5:36	17:15	22:05	24:02	
S	27	13:40	24:30	27:45	27:45	Tu	27	14:08	31:55	31:05	34:15	Th	27	5:38	17:30	22:15	24:00		
S	28	14:08	25:00	28:15	28:15	W	28	14:35	32:55	31:35	34:45	F	28	5:40	17:45	22:25	23:58		
M	29	14:35	25:30	28:45	28:45	Th	29	15:03	33:55	32:05	35:15	A	S	29	5:42	18:00	22:35	23:55	
E	Tu	30	15:03	26:00	29:15	F	30	15:30	34:55	32:35	35:45	N	S	30	5:44	18:15	22:45	23:52	
W	31	15:30	26:30	29:45	29:45								M	31	5:46	18:30	22:55	23:50	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 150th meridian, E. 0° is midnight, 12° is noon, all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3.47 p.m.  
 ●, new moon; ○, 1st quar. ○, full moon. ○, 3d quar. E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee





JULY.					AUGUST.					SEPTEMBER.										
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.						
	W. Mo.						W. Mo.						W. Mo.							
P	S	1	3:49 0.2	9:50 1.6	15:58 0.4	22:08 1.9	P	W	1	5:06 -0.1	11:36 1.7	17:38 0.7	23:10 1.8		S	1	6:37 -0.1	13:16 1.6	19:20 0.8	25:18 0.8
	M	2	4:42 0.1	10:56 1.6	17:00 0.5	22:55 1.8	S	Th	2	6:04 -0.1	12:41 1.7	18:40 0.8		S	2	0:40 1.7	7:35 0.0	14:10 1.7	20:18 0.7	
	Tu	3	5:36 0.0	11:58 1.7	18:04 0.6	23:44 1.8		F	3	0:02 1.7	7:00 -0.1	13:45 1.7	19:40 0.8	O	M	3	1:42 1.7	8:31 0.0	15:00 1.7	21:12 0.6
	W	4	6:32 -0.1	13:08 1.7	19:06 0.7		O	S	4	0:58 1.7	7:58 -0.2	14:42 1.8	20:40 0.8		Tu	4	2:44 1.7	9:23 0.0	15:43 1.8	22:00 0.5
	Th	5	0:34 1.7	7:27 -0.2	14:05 1.8	20:07 0.7		S	5	1:56 1.7	8:50 -0.2	15:32 1.8	21:36 0.7	E	W	5	3:40 1.7	10:10 0.1	16:25 1.8	22:44 0.8
O	F	6	1:25 1.7	8:20 -0.3	15:05 1.9	21:05 0.7		M	6	2:55 1.7	9:43 -0.2	16:17 1.9	22:26 0.6		Th	6	4:35 1.7	10:54 0.1	17:06 1.8	23:24 0.2
	S	7	2:19 1.8	9:12 -0.4	15:58 1.9	21:58 0.7		Tu	7	3:50 1.7	10:32 -0.2	16:59 1.9	23:15 0.5		F	7	5:22 1.8	11:36 0.2	17:45 1.8	23:59 0.2
	S	8	3:12 1.8	10:02 -0.4	16:46 2.0	22:50 0.7		W	8	4:45 1.7	11:18 -0.1	17:40 1.9	23:58 0.4		S	8	0:06 0.2	6:11 1.8	12:24 0.8	18:20 1.8
	M	9	4:06 1.8	10:50 -0.3	17:29 2.0	23:39 0.6	E	Th	9	5:36 1.7	12:00 0.0	18:15 1.9			S	9	0:46 0.1	6:58 1.8	13:08 0.4	18:59 1.8
	Tu	10	5:00 1.7	11:38 -0.3	18:10 2.0			F	10	0:42 0.8	6:30 1.7	12:44 0.1	18:56 1.9	A	M	10	1:30 0.1	7:44 1.7	13:47 0.5	19:35 1.8
E	W	11	0:28 0.5	5:51 1.7	12:22 -0.1	18:52 2.0		S	11	1:24 0.2	7:20 1.7	13:30 0.8	19:37 1.9	C	Tu	11	2:10 0.1	8:26 1.7	14:32 0.6	20:16 1.7
	Th	12	1:15 0.4	6:45 1.6	13:08 0.0	19:32 2.0	C	S	12	2:10 0.2	8:10 1.6	14:15 0.4	20:16 1.8		W	12	2:52 0.1	9:14 1.7	15:19 0.6	20:59 1.7
	F	13	2:00 0.4	7:40 1.6	13:50 0.2	20:10 1.9	A	M	13	2:54 0.1	9:02 1.6	14:59 0.6	20:55 1.8	N	Th	13	3:37 0.1	10:05 1.7	16:10 0.6	21:46 1.6
	S	14	2:45 0.8	8:35 1.5	14:44 0.4	20:55 1.9		Tu	14	3:39 0.1	9:55 1.5	15:48 0.7	21:36 1.7		F	14	4:29 0.1	11:00 1.7	17:09 0.7	22:38 1.6
	S	15	3:35 0.2	9:31 1.5	15:32 0.5	21:37 1.8	N	W	15	4:24 0.1	10:46 1.5	16:40 0.8	22:20 1.7		S	15	5:22 0.1	11:58 1.7	18:12 0.7	23:37 1.6
A	M	16	4:24 0.2	10:30 1.4	16:20 0.7	22:15 1.7		Th	16	5:13 0.1	11:40 1.5	17:36 0.8	23:08 1.6		S	16	6:20 0.1	12:55 1.7	19:12 0.7	
	Tu	17	5:10 0.2	11:30 1.5	17:14 0.8	23:00 1.7		F	17	6:08 0.1	12:36 1.6	18:40 0.8		M	17	0:38 1.6	7:19 0.1	13:50 1.8	20:09 0.6	
	W	18	5:58 0.1	12:27 1.5	18:11 0.8	23:44 1.7		S	18	0:01 1.6	6:56 0.0	13:35 1.7	19:40 0.8	●	Tu	18	1:46 1.6	8:15 0.1	14:40 1.8	20:58 0.5
	Th	19	6:46 0.1	13:20 1.5	19:10 0.9			S	19	0:57 1.6	7:50 0.0	14:26 1.7	20:38 0.7		W	19	2:41 1.7	9:12 0.0	15:26 1.9	21:45 0.8
	F	20	0:32 1.6	7:32 0.0	14:11 1.6	20:06 0.9	●	M	20	1:55 1.6	8:40 -0.1	15:17 1.8	21:30 0.6	E	Th	20	3:38 1.8	10:05 0.1	16:18 1.9	22:30 0.2
●	S	21	1:22 1.6	8:20 -0.1	15:00 1.7	21:04 0.8		Tu	21	2:51 1.7	9:32 -0.1	16:02 1.9	22:18 0.5		F	21	4:34 1.9	10:54 0.1	17:00 1.9	23:14 0.1
	S	22	2:15 1.6	9:06 -0.2	15:48 1.8	21:55 0.7		W	22	3:48 1.7	10:20 -0.1	16:46 2.0	23:04 0.4	P	S	22	5:27 2.0	11:42 0.1	17:40 1.9	
	M	23	3:07 1.6	9:52 -0.2	16:32 1.9	22:45 0.7	E	Th	23	4:41 1.8	11:08 -0.1	17:28 2.0	23:45 0.3		S	23	0:00 -0.1	6:14 2.0	12:32 0.2	18:22 1.9
	Tu	24	4:00 1.7	10:39 -0.2	17:15 2.0	23:32 0.6		F	24	5:35 1.8	11:57 0.0	18:11 2.0		M	24	0:45 -0.2	7:06 2.0	13:25 0.3	19:04 1.9	
	W	25	4:52 1.7	11:24 -0.2	17:58 2.1			S	25	0:28 0.2	6:30 1.9	12:45 0.1	18:56 1.9	D	Tu	25	1:33 -0.2	7:59 2.0	14:14 0.5	19:48 1.8
E	Th	26	0:17 0.5	5:45 1.7	12:10 -0.1	18:40 2.1		S	26	1:14 0.1	7:24 1.9	13:35 0.2	19:38 1.9	S	W	26	2:24 -0.2	8:54 1.9	15:05 0.6	20:35 1.7
	F	27	1:00 0.8	6:40 1.7	12:57 0.0	19:21 2.0	D	M	27	2:00 0.0	8:16 1.9	14:25 0.4	20:18 1.9		Th	27	3:15 -0.1	9:50 1.8	16:00 0.6	21:26 1.7
	S	28	1:44 0.2	7:35 1.7	13:47 0.1	20:05 2.0		Tu	28	2:50 -0.1	9:10 1.8	15:20 0.5	21:04 1.8		F	28	4:10 -0.1	10:46 1.8	16:59 0.7	22:22 1.6
	S	29	2:30 0.1	8:32 1.7	14:40 0.3	20:51 1.9		W	29	3:43 -0.1	10:10 1.8	16:17 0.6	21:50 1.7		S	29	5:10 0.0	11:44 1.7	18:00 0.7	23:25 1.6
	M	30	3:20 0.1	9:34 1.7	15:40 0.4	21:35 1.8	S	Th	30	4:39 -0.1	11:13 1.7	17:15 0.7	22:44 1.7		S	30	6:10 0.1	12:39 1.7	18:59 0.6	
	Tu	31	4:12 0.0	10:32 1.7	16:37 0.6	22:20 1.8		F	31	5:36 -0.1	12:15 1.7	18:16 0.8	23:40 1.7							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.0 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cosmopolitan Standard, 150th meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.							
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	M 1	0:30	7:10	13:30	19:52	○	Th 1	2:26	8:39	14:20	20:56	○	S 1	2:57	8:52	14:15	21:08
		1.5	0.2	1.6	0.5			1.6	0.5	1.6	0.2			1.6	0.8	1.6	0.0
○	Tu 2	1:36	8:08	14:21	20:40		F 2	3:15	9:25	15:00	21:40	A	S 2	3:38	9:40	14:57	21:46
		1.6	0.3	1.7	0.4			1.7	0.6	1.7	0.1			1.7	0.7	1.6	-0.1
E	W 3	2:37	8:58	15:08	21:26		S 3	4:00	10:10	15:40	22:19		M 3	4:22	10:25	15:40	22:25
		1.6	0.3	1.7	0.3			1.8	0.6	1.7	0.0			1.8	0.7	1.7	-0.2
	Th 4	3:32	9:46	15:46	22:10	A	S 4	4:42	10:52	16:19	22:56	N	Tu 4	5:05	11:10	16:25	23:04
		1.7	0.3	1.7	0.2			1.8	0.6	1.7	-0.1			1.9	0.7	1.7	-0.2
	F 5	4:21	10:35	16:24	22:50		M 5	5:26	11:38	16:58	23:35		W 5	5:45	11:56	17:10	23:44
		1.8	0.3	1.7	0.1			1.9	0.6	1.7	-0.1			2.0	0.7	1.6	-0.2
	S 6	5:05	11:18	17:00	23:30	N	Tu 6	6:05	12:17	17:40	...		Th 6	6:26	12:42	17:55	...
		1.8	0.4	1.8	0.0			1.9	0.6	1.7	...			2.0	0.6	1.6	...
	S 7	5:47	11:58	17:39	...		W 7	0:13	6:50	13:03	18:22		F 7	0:25	7:09	13:30	18:44
		1.8	0.4	1.8	...			-0.2	2.0	0.6	1.6			-0.2	2.0	0.6	1.6
A	M 8	0:10	6:28	12:40	18:18		Th 8	0:54	7:33	13:48	19:09		S 8	1:10	7:54	14:15	19:38
		0.0	1.9	0.5	1.7			-0.1	2.0	0.6	1.6			-0.1	2.0	0.6	1.6
	Tu 9	0:48	7:10	13:22	18:56	○	F 9	1:36	8:18	14:36	19:59	○	S 9	1:58	8:38	15:02	20:35
		0.0	1.9	0.5	1.7			-0.1	2.0	0.6	1.6			0.0	2.0	0.5	1.5
N	W 10	1:28	7:55	14:08	19:40		S 10	2:24	9:06	15:25	20:54		M 10	2:49	9:24	15:52	21:38
		-0.1	1.9	0.6	1.7			0.0	1.9	0.6	1.5			0.1	2.0	0.4	1.6
○	Th 11	2:12	8:44	14:55	20:26		S 11	3:17	9:54	16:19	21:54	E	Tu 11	3:45	10:09	16:45	22:44
		0.0	1.8	0.6	1.6			0.1	1.9	0.5	1.5			0.3	1.9	0.3	1.6
	F 12	2:57	9:34	15:46	21:16		M 12	4:11	10:44	17:14	23:00		W 12	4:50	11:02	17:39	23:52
		0.0	1.8	0.7	1.6			0.2	1.9	0.4	1.5			0.4	1.8	0.2	1.6
	S 13	3:50	10:25	16:42	22:15	E	Tu 13	5:14	11:35	18:09	...		Th 13	6:00	11:52	18:32	...
		0.1	1.8	0.7	1.5			0.3	1.8	0.3	...			0.5	1.8	0.0	...
	S 14	4:45	11:20	17:40	23:18		W 14	0:10	6:20	12:34	19:03		F 14	0:52	7:02	12:41	19:26
		0.1	1.8	0.6	1.5			1.6	0.4	1.8	0.2			1.7	0.6	1.8	-0.1
	M 15	5:45	12:14	18:38	...		Th 15	1:17	7:29	13:21	19:55		S 15	1:55	8:04	13:32	20:20
		0.2	1.8	0.5	...			1.7	0.4	1.8	0.1			1.8	0.6	1.8	-0.2
	Tu 16	0:28	6:48	13:06	19:33	●	F 16	2:10	8:28	14:10	20:45	P	S 16	2:55	9:01	14:22	21:09
		1.6	0.2	1.8	0.4			1.8	0.4	1.8	-0.1			1.9	0.6	1.8	-0.4
E	W 17	1:29	7:50	14:05	20:24	P	S 17	3:10	9:26	15:00	21:33	S	M 17	3:52	9:56	15:13	22:00
		1.7	0.2	1.8	0.2			2.0	0.5	1.8	-0.3			2.0	0.6	1.8	-0.4
●	Th 18	2:32	8:49	14:55	21:13		S 18	4:06	10:20	15:45	22:21		Tu 18	4:43	10:48	16:04	22:48
		1.8	0.2	1.8	0.1			2.1	0.5	1.8	-0.4			2.0	0.6	1.8	-0.5
	F 19	3:25	9:45	15:38	22:00	S	M 19	5:00	11:10	16:32	23:10		W 19	5:31	11:39	16:55	23:38
		1.9	0.2	1.8	-0.1			2.1	0.5	1.8	-0.4			2.1	0.6	1.8	-0.4
P	S 20	4:18	10:38	16:20	22:45		Tu 20	5:50	12:00	17:19	23:56		Th 20	6:17	12:29	17:46	...
		2.0	0.3	1.8	-0.2			2.2	0.5	1.8	-0.5			2.1	0.5	1.7	...
	S 21	5:10	11:30	17:05	23:33		W 21	6:38	12:50	18:07	...		F 21	0:28	7:00	13:20	18:40
		2.1	0.3	1.8	-0.3			2.2	0.5	1.8	...			-0.3	2.1	0.5	1.7
	M 22	6:02	12:20	17:49	...		Th 22	0:46	7:25	13:40	18:58		S 22	1:16	7:45	14:10	19:36
		2.2	0.4	1.8	...			-0.4	2.1	0.5	1.7			-0.2	2.0	0.4	1.6
S	Tu 23	0:20	6:53	13:06	18:34	D	F 23	1:35	8:13	14:32	19:51	D	S 23	2:00	8:25	14:55	20:35
		-0.3	2.1	0.5	1.8			-0.2	2.0	0.5	1.6			0.0	2.0	0.4	1.5
D	W 24	1:07	7:44	13:58	19:20		S 24	2:25	8:58	15:24	20:50	E	M 24	2:48	9:08	15:45	21:36
		-0.3	2.1	0.5	1.7			-0.1	2.0	0.5	1.5			0.2	1.9	0.8	1.5
	Th 25	1:57	8:35	14:50	20:12		S 25	3:15	9:43	16:13	21:54		Tu 25	3:46	9:54	16:37	22:40
		-0.2	2.0	0.6	1.7			0.1	1.9	0.5	1.5			0.4	1.8	0.3	1.5
	F 26	2:48	9:26	15:44	21:07	E	M 26	4:09	10:28	17:07	23:00		W 26	4:40	10:36	17:29	23:44
		-0.1	1.9	0.6	1.6			0.3	1.8	0.4	1.5			0.6	1.7	0.2	1.4
	S 27	3:44	10:18	16:40	22:07		Tu 27	5:11	11:20	18:02	...		Th 27	5:34	11:18	18:19	...
		0.0	1.8	0.6	1.5			0.6	1.7	0.3	...			0.7	1.7	0.1	...
	S 28	4:41	11:06	17:33	23:15		W 28	0:10	6:15	12:05	18:54		F 28	0:47	6:30	12:08	19:06
		0.2	1.7	0.5	1.5			1.5	0.6	1.7	0.2			1.5	0.8	1.7	0.1
	M 29	5:40	11:56	18:28	...		Th 29	1:12	7:10	12:48	19:41	A	S 29	1:41	7:25	12:47	19:51
		0.3	1.7	0.5	...			1.5	0.7	1.6	0.2			1.5	0.9	1.6	0.0
E	Tu 30	0:22	6:40	12:52	19:22		F 30	2:09	8:04	13:30	20:25		S 30	2:29	8:18	13:33	20:34
		1.5	0.4	1.6	0.4			1.6	0.7	1.6	0.1			1.6	0.9	1.6	-0.1
	W 31	1:29	7:41	13:38	20:11							○	M 31	3:14	9:10	14:20	21:15
		1.6	0.5	1.6	0.3									1.7	0.8	1.6	-0.1

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.0 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height in which case subtract it.

The time used is Cosmopolitan Standard, 150th meridian, E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.													MARCH.												
Moon.		Day of		Time and Height of High and Low Water.				Moon.		Day of		Time and Height of High and Low Water.				Moon.		Day of		Time and Height of High and Low Water.					
W.	Mo.	Time	Height	Time	Height	Time	Height	W.	Mo.	Time	Height	Time	Height	Time	Height	W.	Mo.	Time	Height	Time	Height	Time	Height		
M	1	0:35	6:45	18:10	19:25			Th	1	1:40	7:42	18:10	19:25	Th	1	0:54	6:55	12:58	19:18						
		1.1	6.3	0.0	5.1					0.8	5.6	0.1	5.9			-0.1	6.2	-0.4	6.9						
Tu	2	1:12	7:17	18:40	20:06			F	2	2:15	8:12	14:20	21:06	F	2	1:20	7:18	13:20	19:43						
		1.2	5.8	0.3	5.2					1.1	4.9	0.7	5.6			0.1	5.8	-0.2	6.7						
W	3	1:49	7:56	14:15	20:56			S	3	2:55	8:50	14:15	22:04	S	3	1:49	7:44	13:46	20:18						
		1.5	5.2	0.7	5.1					1.8	4.0	1.4	5.1			0.5	5.2	0.3	6.8						
Th	4	2:36	8:47	14:54	22:04			S	4	4:00	10:05	15:06	23:40	S	4	2:24	8:12	14:09	20:57						
		2.0	4.4	1.3	4.8					2.7	3.4	2.2	4.6			1.1	4.4	1.0	5.6						
F	5	4:20	10:00	15:44	23:38			M	5	9:00	16:00	20:00		M	5	3:05	8:50	14:30	22:04						
		2.8	3.6	2.0	4.7					2.2	3.2	3.0				2.1	3.7	1.9	4.7						
S	6	6:50	12:06	17:45		N	Tu	6	2:10	10:05	16:50	21:34	N	Tu	6	9:10	16:50	20:46							
		2.7	3.2	2.5						4.8	1.2	3.7	2.4			2.5	3.3	3.0							
S	7	1:20	8:55	15:06	20:28			W	7	8:40	10:37	17:09	22:20	W	7	1:00	9:58	16:26	21:38						
		4.7	1.7	3.0	2.3					5.5	0.4	4.4	1.7			4.2	1.6	3.7	2.7						
M	8	2:44	9:58	16:14	21:32			Th	8	4:25	11:08	17:30	22:54	Th	8	3:37	10:24	17:00	22:18						
		5.5	0.8	4.1	1.9					6.2	0.0	4.9	1.3			5.0	0.7	4.6	1.7						
Tu	9	3:40	10:35	16:52	22:12			F	9		11:32	17:51	23:20	F	9	4:19	10:50	17:15	22:48						
		6.0	0.2	4.5	1.5					6.6	-0.3	5.3	0.9			5.7	0.1	5.2	1.0						
W	10	4:17	11:05	17:23	22:45			S	10	5:25	11:55	18:07	23:40	S	10	4:51	11:16	17:30	23:16						
		6.5	-0.3	4.8	1.3					6.8	-0.5	5.5	0.7			6.3	-0.3	5.8	0.4						
Th	11	4:48	11:32	17:45	23:09			S	11	5:45	12:15	18:21		S	11	5:18	11:37	17:45	23:38						
		6.8	-0.5	4.9	1.1					6.8	-0.5	5.6				6.5	-0.4	6.1	0.1						
F	12	5:14	11:54	18:05	23:29			M	12	6:02	6:08	12:30	18:35	E	M	12	5:41	11:52	17:58	23:55					
		7.0	-0.5	4.9	1.0					6.5	6.7	-0.4	5.8			6.6	-0.3	6.3	0.0						
S	13	5:36	12:15	18:30	23:50			Tu	13	6:22	6:30	12:45	18:50	P	Tu	13	6:01	12:04	18:10						
		6.9	-0.4	5.0	1.0					6.4	6.5	-0.3	6.1			6.5	-0.2	6.5							
S	14	6:00	12:32	18:40		P	W	14	6:45	6:50	13:00	19:08	W	14	6:14	6:19	12:16	18:24							
		6.8	-0.3	5.1						6.3	6.1	0.0	6.3			-0.2	6.3	-0.1	6.7						
M	15	6:15	6:25	12:53	19:00			Th	15	1:10	7:10	13:15	19:32	Th	15	6:33	6:35	12:28	18:38						
		0.9	6.6	-0.2	5.3					0.5	5.7	0.2	6.2			-0.1	5.9	0.0	6.8						
Tu	16	6:44	6:52	13:15	19:25			F	16	1:37	7:30	13:33	20:00	F	16	6:53	6:50	12:43	19:00						
		0.9	6.2	0.1	5.4					0.8	6.1	0.5	5.9			0.1	6.5	0.1	6.8						
W	17	1:14	7:20	13:40	20:00			S	17	2:05	7:55	13:50	20:35	C	S	17	1:16	7:06	13:02	19:26					
		1.1	5.5	0.5	5.4					1.4	4.4	1.0	5.4			0.5	5.0	0.4	6.4						
Th	18	1:50	7:48	14:00	20:37			S	18	2:36	8:18	14:17	21:16	S	S	18	1:44	7:21	13:17	19:53					
		1.4	4.8	1.0	5.1					2.2	8.6	1.5	4.7			1.0	4.4	0.8	5.9						
F	19	2:22	8:10	14:45	21:38			M	19	3:05	9:16	14:55	21:47	M	19	2:11	7:42	13:30	20:15						
		2.0	4.1	1.5	4.7					3.2	3.3	2.3	3.8			1.3	3.8	1.4	5.0						
S	20	3:20	9:10	15:55	23:07			Tu	20	10:18	16:20	21:30		Tu	20	2:50	8:10	14:00	21:10						
		2.9	3.3	2.0	4.3					1.5	3.7	3.1				2.7	3.3	2.0	4.2						
S	21		11:30	17:35				W	21	4:00	10:50	17:13	22:22	W	21		16:30	21:30							
		2.3	3.2	2.7						4.9	0.8	4.2	2.3			1.9	3.8	3.2							
M	22	2:30	8:50	14:00	20:00			Th	22	4:37	11:11	17:36	22:52	Th	22	3:50	10:28	16:35	22:14						
		4.5	1.4	3.5	2.9					5.6	0.3	4.8	1.5			4.5	1.3	4.4	2.1						
Tu	23	3:55	10:25	15:55	23:00			F	23	5:00	11:25	17:45	23:17	F	23		10:41	17:42	22:40						
		5.3	0.6	4.0	2.4					6.1	-0.1	5.2	0.9			5.2	0.7	5.1	1.2						
W	24	4:30	11:10	17:20	22:49			S	24		11:44	17:56	23:39	S	24	4:44	10:58	17:12	23:04						
		5.9	0.1	4.4	1.7					6.4	-0.3	5.6	0.5			5.7	0.2	5.8	0.5						
Th	25	5:00	11:40	17:50	23:13			S	25	6:42	11:58	18:07	23:55	S	25	5:05	11:17	17:25	23:25						
		6.3	-0.1	4.7	1.4					6.5	-0.4	5.9	0.3			6.1	0.0	4.2	0.1						
F	26	5:20	11:56	18:15	23:32			M	26	5:58	12:09	18:19		M	26	5:27	11:33	17:37	23:43						
		6.6	-0.2	4.9	1.1					6.6	-0.4	6.3				6.3	-0.2	6.6	-0.2						
S	27	5:40	12:12	18:30	23:52			Tu	27	6:12	6:16	12:23	18:33	Tu	27	5:42	11:43	17:50	23:59						
		6.6	-0.2	5.9	0.9					6.1	6.5	-0.5	6.6			6.4	-0.3	6.8	-0.3						
S	28	6:00	12:25	18:46				W	28	6:32	6:34	12:40	18:50	W	28	5:59	11:56	18:05							
		6.7	-0.3	5.4						-0.1	6.4	-0.5	6.8			6.3	-0.3	7.0							
M	29	6:14	6:21	12:40	19:02									Th	29	6:18	6:16	12:11	18:20						
		6.7	6.6	-0.4	5.8										-0.4	6.1	-0.3	7.2							
Tu	30	6:40	6:48	13:02	19:20									F	30	6:38	6:36	12:29	18:42						
		6.5	6.4	-0.4	6.1										-0.4	5.9	-0.2	7.2							
W	31	1:10	7:12	13:26	19:44									S	31	6:59	6:57	12:52	19:09						
		0.5	6.1	-0.2	6.2										-0.2	5.5	0.0	7.0							

APRIL.					MAY.					JUNE.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
N	S 1	1:27	7:23	13:15	19:39	D	Tu 1	1:45	7:44	13:19	19:45	E	F 1	3:00	10:00	14:50	21:58
		0.2	5.0	0.4	6.5			0.6	4.3	1.3	5.8			1.6	3.8	2.8	4.0
	M 2	2:00	7:52	13:38	20:12		W 2	2:22	8:25	13:42	20:27		S 2	4:10	12:09	20:05	21:13
		0.8	4.4	1.1	5.8			1.3	3.7	2.1	4.8			2.2	3.8	3.1	4.3
	Tu 3	2:37	8:19	13:49	20:51		Th 3	3:12	10:35	14:20	22:38		S 3	0:20	7:41	13:55	21:13
N		1.6	3.6	1.9	4.8	F		2.1	3.2	3.0	3.9	M		3.4	2.6	4.3	2.2
	W 4	3:29	10:16	14:20	23:38		F 4	3:30	15:00	21:02	22:38		4	2:51	8:50	14:57	21:55
		2.6	2.8	2.7	4.0			2.5	3.7	2.8	3.9			3.6	2.2	5.0	1.3
	Th 5	9:35	16:00	21:33	22:05		S 5	2:12	9:14	15:35	21:40		Tu 5	3:57	9:30	15:39	22:28
		2.0	3.8	2.7	4.0			3.8	1.9	4.4	1.9			4.0	1.8	5.6	0.6
E	F 6	3:18	10:00	16:32	22:05	E	S 6	3:35	9:45	15:57	22:13	P	W 6	4:40	10:05	16:12	23:02
		4.3	1.2	4.7	1.7			4.4	1.4	5.2	1.0			4.3	1.6	6.1	0.2
	S 7	4:05	10:25	16:44	22:35		M 7	4:15	10:10	16:20	22:43		Th 7	5:10	10:32	16:39	23:30
		5.1	0.6	5.4	0.8			5.0	1.0	5.9	0.3			4.3	1.5	6.4	0.1
	S 8	4:37	10:49	17:00	23:02		○ Tu 8	4:50	10:38	16:40	23:10		S 8	5:35	10:52	17:01	23:52
O		5.7	0.4	6.0	0.2	P		5.2	0.8	6.3	—0.1	S		4.3	1.5	6.6	0.1
	M 9	5:05	11:11	17:15	23:21		W 9	5:17	10:56	17:00	23:35		9	5:50	11:10	17:25	23:52
		6.1	0.1	6.3	—0.1			5.2	0.8	6.6	—0.2			4.2	1.4	6.7	0.1
	Tu 10	5:30	11:27	17:29	23:46		Th 10	5:35	11:10	17:16	23:52		S 10	0:10	6:05	11:30	17:48
		6.1	0.2	6.6	—0.8			5.0	0.9	6.8	—0.1			0.2	4.2	1.3	6.7
P	W 11	5:49	11:38	17:44	23:52	S	F 11	5:50	11:24	17:35	24:00	M	11	0:30	6:26	11:55	18:15
		5.9	0.3	6.8	0.0			4.7	0.9	7.0	0.0			0.3	4.3	1.2	6.6
	Th 12	0:04	6:04	11:49	17:58		S 12	0:13	6:05	11:40	17:56		Tu 12	0:50	6:50	12:22	18:45
		—0.2	5.6	0.3	7.0			0.0	4.6	0.8	7.0			0.3	4.4	1.2	6.3
	F 13	0:22	6:18	12:02	18:15	C	S 13	0:30	6:23	11:58	18:20	C	W 13	1:19	7:25	13:01	19:20
S		—0.1	5.3	0.3	7.1			0.1	4.5	0.8	6.8			0.5	4.5	1.4	5.9
	S 14	0:40	6:34	12:17	18:38		M 14	0:55	6:45	12:23	18:49		Th 14	1:51	8:15	13:45	20:07
		0.0	5.0	0.4	6.9			0.4	4.3	0.9	6.4			0.7	4.5	1.9	5.1
	S 15	1:03	6:51	12:39	19:04		Tu 15	1:22	7:15	12:58	19:20	E	F 15	2:30	9:18	14:45	21:11
C		0.3	4.6	0.6	6.6			0.7	4.2	1.3	5.8			1.1	4.5	2.4	4.3
	M 16	1:30	7:10	13:00	19:30	W	W 16	1:55	7:59	13:25	20:00		S 16	3:20	10:45	16:18	22:46
		0.8	4.2	1.0	5.9			1.1	3.9	1.9	5.0			1.6	4.4	2.8	3.7
	Tu 17	1:59	7:28	13:18	19:58		Th 17	2:28	9:11	14:05	21:16		S 17	4:38	12:15	20:08	23:52
		1.5	3.7	1.7	5.1			1.7	3.5	2.7	4.0			2.1	4.6	2.5	3.7
W	W 18	3:00	8:05	13:55	20:40	F	F 18	3:49	12:22	20:22	21:11	M	18	0:40	7:07	13:42	21:11
		2.3	3.2	2.4	4.0			2.4	3.4	3.1	3.7			3.4	2.2	5.0	1.7
	Th 19	9:00	15:30	21:00	21:50		S 19	0:15	8:08	14:35	21:08		Tu 19	2:35	8:30	14:50	21:53
		2.6	3.7	3.1	4.0			3.5	2.4	4.2	2.2			3.6	1.9	5.6	0.9
	F 20	3:00	9:37	16:00	21:50	S	S 20	2:37	8:54	15:13	21:45	W	20	3:46	9:26	15:39	22:30
E		3.7	1.8	4.5	1.9			3.9	1.8	5.1	1.2			4.0	1.6	6.1	0.4
	S 21	3:48	9:57	16:18	22:17		M 21	3:35	9:30	15:44	22:18		Th 21	4:34	10:06	16:15	23:02
		4.5	1.2	5.1	1.1			4.4	1.3	5.8	0.5			4.3	1.4	6.5	0.0
	S 22	4:17	10:18	16:32	22:44		Tu 22	4:13	10:02	16:14	22:45	N	F 22	5:10	10:38	16:43	23:30
M		5.2	0.6	5.8	0.4			4.8	0.9	6.4	0.0			4.5	1.2	6.7	—0.2
	M 23	4:43	10:39	16:50	23:07	A	W 23	4:47	10:31	16:37	23:12		S 23	5:37	11:03	17:10	23:53
		5.6	0.3	6.4	—0.1			5.0	0.8	6.7	—0.2			4.6	1.2	6.9	—0.2
	Tu 24	5:07	11:01	17:06	23:30		Th 24	5:14	10:52	17:00	23:35		S 24	6:00	11:25	17:33	24:00
		5.8	0.2	6.7	—0.3			5.0	0.8	6.9	—0.3			4.5	1.2	6.9	0.0
A	W 25	5:28	11:18	17:24	23:47	N	F 25	5:34	11:10	17:19	23:55	M	25	0:13	6:20	11:46	17:59
		5.8	0.2	7.0	—0.4			4.9	0.8	7.0	—0.3			—0.2	4.5	1.2	6.8
	Th 26	5:44	11:31	17:41	23:52		S 26	5:55	11:29	17:40	24:00		Tu 26	0:38	6:45	12:10	18:26
		5.6	0.2	7.1	0.0			4.8	0.8	7.1	0.0			—0.1	4.6	1.2	6.6
	F 27	0:05	6:00	11:48	17:57	S	S 27	0:16	6:15	11:50	18:03	W	27	1:01	7:10	12:42	18:57
N		—0.4	5.4	0.2	7.3			—0.2	4.7	0.9	7.1			0.0	4.7	1.2	6.2
	S 28	0:24	6:20	12:05	18:20		M 28	0:40	6:40	12:10	18:30		Th 28	1:30	7:45	13:20	19:34
		—0.3	5.3	0.3	7.2			—0.1	4.6	0.9	6.8			0.3	4.8	1.4	5.7
	S 29	0:46	6:43	12:27	18:45		Tu 29	1:06	7:08	12:41	19:01	D	F 29	2:00	8:28	14:00	20:15
M		—0.2	5.0	0.4	7.0			0.1	4.5	1.1	6.4			0.6	4.8	1.8	4.9
	M 30	1:15	7:09	12:51	19:15	D	W 30	1:38	7:45	13:13	19:37		S 30	2:35	9:18	14:52	21:10
		0.1	4.7	0.8	6.5			0.4	4.3	1.5	5.7			1.1	4.7	2.2	4.1
							Th 31	2:15	8:40	13:51	20:25						
								1.0	4.1	2.1	4.8						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is 1.0 foot above the datum of soundings on the Admiralty Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height increased by 1 foot to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it from the soundings and add 1 foot.

The time used is Cosmopolitan Standard, 135th meridian E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	S 1	3:15 1.7	10:29 4.5	16:01 2.8	22:37 3.4	P	W 1	2:17 2.3	12:12 4.4	22:10 1.9			S 1	5:09 3.9	10:00 2.5	16:12 5.3	22:50 0.6
	M 2	3:55 2.3	12:00 4.4	20:58 2.5		S	Th 2	5:00 3.2	8:40 2.4	14:58 4.9	22:35 1.1		S 2	5:20 4.6	10:32 1.7	16:41 5.9	23:08 0.2
	Tu 3	1:00 3.0	6:41 2.8	18:28 4.7	21:50 1.6		F 3	5:30 3.6	9:48 2.5	16:03 5.6	23:02 0.5	○	M 3	5:25 5.1	11:00 1.0	17:05 6.2	23:28 0.0
P	W 4	4:20 3.3	8:50 2.7	15:04 5.3	22:28 1.0	○	S 4	5:38 4.1	10:30 2.0	16:40 6.0	23:26 0.2		Tu 4	5:38 5.5	11:25 0.6	17:25 6.3	23:48 -0.1
	Th 5	4:58 3.5	9:46 2.2	15:57 5.8	23:05 0.5		S 5	5:48 4.5	11:00 1.6	17:08 6.3	23:46 0.1	E	W 5	5:50 5.9	11:43 0.4	17:44 6.3	23:54 -0.1
	F 6	5:25 3.9	10:22 2.0	16:34 6.2	23:31 0.3		M 6	6:01 4.8	11:25 1.2	17:30 6.4			Th 6	6:02 6.2	12:01 0.3	18:08 6.2	
	S 7	5:48 4.1	10:50 1.7	17:01 6.4	23:58 0.2		Tu 7	0:05 0.0	6:10 5.0	11:45 1.0	17:51 6.4		F 7	0:08 -0.2	6:17 6.5	12:20 0.1	18:30 6.2
	S 8	6:00 4.2	11:14 1.6	17:28 6.5			W 8	0:17 0.0	6:23 5.3	12:07 0.8	18:13 6.4		S 8	0:21 -0.2	6:32 6.7	12:40 0.1	18:41 5.9
	M 9	0:10 0.2	6:15 4.3	11:37 1.4	17:48 6.5	E	Th 9	0:34 -0.1	6:41 5.7	12:30 0.7	18:38 6.2		S 9	0:40 -0.2	6:55 6.8	13:08 0.2	19:02 5.6
	Tu 10	0:27 0.2	6:31 4.6	12:00 1.2	18:14 6.4		F 10	0:50 -0.1	7:00 6.0	12:59 0.6	19:04 5.9	A	M 10	1:02 0.0	7:25 6.6	13:24 0.5	19:30 5.0
	W 11	0:46 0.1	6:58 4.9	12:30 1.2	18:43 6.2		S 11	1:13 0.0	7:30 6.2	13:30 0.8	19:31 5.6	○	Tu 11	1:30 0.4	7:58 6.3	14:09 1.0	20:00 4.4
	Th 12	1:09 0.1	7:22 5.2	13:07 1.1	19:17 5.9	○	S 12	1:40 0.2	8:05 6.1	14:04 1.0	20:08 5.0		W 12	1:57 1.0	8:39 5.6	14:52 1.7	20:36 3.6
E	F 13	1:38 0.2	8:00 6.4	13:47 1.4	19:55 5.4	A	M 13	2:06 0.5	8:48 5.8	14:45 1.6	20:42 4.3	N	Th 13	2:15 1.8	9:42 4.8	15:11 2.7	21:19 2.8
	S 14	2:12 0.5	8:45 5.4	14:38 1.7	20:40 4.7		Tu 14	2:38 1.2	9:42 6.4	15:40 2.3	21:43 3.4		F 14	2:38 3.0	10:17 4.8	15:48 1.9	
	S 15	2:46 1.0	9:40 6.2	15:25 2.2	21:39 4.0		W 15	3:10 1.9	11:00 4.8	20:13 2.5			S 15	4:00 3.6	9:04 2.8	14:48 4.8	21:55 1.0
A	M 16	3:29 1.5	10:52 5.0	17:10 2.8	23:05 3.3	N	Th 16	0:00 3.5	4:00 2.7	12:55 4.7	21:33 1.6		S 16	4:30 4.5	9:52 1.8	15:50 5.5	22:26 0.3
	Tu 17	4:30 2.2	12:15 4.9	20:37 2.2			F 17	4:00 3.4	8:58 2.6	14:55 5.2	22:10 0.8		M 17	4:48 5.2	10:28 1.0	16:26 6.0	22:53 -0.1
	W 18	1:12 3.2	7:11 2.5	13:51 5.2	21:39 1.4		S 18	4:42 4.2	9:54 2.0	15:57 5.8	22:44 0.2	●	Tu 18	5:08 5.8	10:59 0.5	16:57 6.4	23:18 -0.3
	Th 19	3:40 3.3	8:58 2.2	15:08 5.7	22:19 0.6		S 19	5:08 4.7	10:35 1.3	16:37 6.3	23:12 -0.2	E	W 19	5:25 6.1	11:22 0.1	17:28 6.5	23:35 -0.2
N	F 20	4:35 4.0	9:56 1.8	16:00 6.2	22:55 0.1	●	M 20	5:33 5.2	11:06 0.9	17:08 6.6	23:37 -0.4		Th 20	5:40 6.4	11:40 0.0	17:46 6.4	23:48 -0.1
●	S 21	5:13 4.5	10:34 1.5	16:40 6.5	23:25 -0.2		Tu 21	5:51 5.5	11:31 0.7	17:32 6.7			F 21	5:53 6.5	12:00 -0.1	18:05 6.1	
	S 22	5:43 4.7	11:05 1.3	17:08 6.7	23:50 -0.3		W 22	0:00 -0.4	6:08 5.7	11:51 0.5	17:58 6.5	P	S 22	0:00 0.1	6:08 6.6	12:20 -0.1	18:20 5.7
	M 23	6:05 4.8	11:29 1.1	17:34 6.7		E	Th 23	0:16 -0.3	6:23 5.9	12:12 0.4	18:20 6.3		S 23	0:13 0.2	6:20 6.8	12:40 0.1	18:35 5.3
	Tu 24	0:11 -0.3	6:23 4.9	11:52 1.1	17:59 6.7		F 24	0:32 -0.1	6:39 6.1	12:35 0.4	18:40 6.0	M	Th 24	0:26 0.3	6:43 6.7	13:03 0.4	18:52 4.8
	W 25	0:31 -0.2	6:40 5.1	12:15 1.0	18:25 6.5		S 25	0:46 0.1	6:55 6.3	13:00 0.4	19:00 5.6	○	Tu 25	0:45 0.5	7:08 6.4	13:29 0.9	19:08 4.3
	Th 26	0:52 -0.1	7:00 5.3	12:42 0.9	18:52 6.1		S 26	1:01 0.3	7:17 6.2	13:25 0.7	19:20 5.1	S	W 26	1:01 0.9	7:33 5.9	13:59 1.8	19:22 3.8
E	F 27	1:13 0.1	7:25 5.5	13:15 1.0	19:22 5.7	P	M 27	1:21 0.5	7:46 6.0	13:55 1.2	19:41 4.4		Th 27	1:15 1.4	8:02 5.1	14:28 2.3	19:58 3.2
	S 28	1:37 0.4	7:55 5.6	13:50 1.2	19:51 5.1		Tu 28	1:39 0.9	8:11 5.6	14:28 2.0	20:00 3.7		F 28	1:57 2.0	8:37 4.2	15:05 3.0	
○	S 29	2:00 0.8	8:32 6.4	14:25 1.7	20:23 4.4		W 29	1:49 1.4	9:03 5.0	15:08 2.8	20:40 3.2		S 29	4:00 3.8	9:55 3.2	15:40 4.2	22:08 1.5
	M 30	2:23 1.3	9:18 5.1	15:08 2.4	20:45 3.5	S	Th 30	2:29 2.0	10:45 4.2	22:00 1.9			S 30	4:20 4.8	9:55 2.2	16:02 5.0	22:20 0.9
	Tu 31	2:38 1.8	10:25 4.7	16:55 2.2	21:50 3.0		F 31	4:45 3.5	9:17 3.1	15:33 4.5	22:32 1.2						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is 1.0 foot above the datum of soundings on the Admiralty Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height increased by 1 foot to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it from the soundings and add 1 foot.

The time used is Cosmopolitan Standard, 130th meridian E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ○, 1st quar.; ○, full moon; ○, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.							
Mo. n.	Day of—	Time and Height of High and Low Water.				Mo. n.	Day of—	Time and Height of High and Low Water.				Mo. n.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
C	M 1	4:41	10:20	16:25	22:38	C	Th 1	4:29	10:52	16:49	22:44	A	S 1	4:25	11:02	17:00	22:40
		5.0	1.3	5.5	0.5			6.4	—0.1	5.6	0.3			6.8	—0.5	5.0	0.7
E	Tu 2	4:51	10:48	16:47	22:55	A	F 2	4:48	11:14	17:10	23:00	M	S 2	4:45	11:27	17:21	23:00
		5.7	0.5	5.9	0.2			6.8	—0.4	5.6	0.3			7.0	—0.7	5.0	0.7
N	W 3	5:05	11:10	17:10	23:15	N	S 3	5:04	11:33	17:26	23:14	N	Tu 4	5:06	11:44	17:40	23:15
		6.2	0.1	6.1	0.0			7.0	—0.4	5.5	0.3			7.2	—0.5	4.9	0.7
C	Th 4	5:18	11:30	17:27	23:27	C	S 4	5:20	11:50	17:44	23:30	E	W 5	5:26	12:05	18:00	23:35
		6.5	—0.2	6.2	—0.1			7.2	—0.4	5.3	0.3			7.2	—0.4	4.8	0.7
A	F 5	5:30	11:45	17:42	23:39	A	M 5	5:38	12:09	18:02	23:45	P	Th 6	5:50	12:25	18:22	23:56
		6.7	—0.3	6.0	—0.1			7.3	—0.4	5.1	0.4			7.2	—0.4	4.7	0.8
N	S 6	5:47	12:04	17:59	23:52	N	Tu 6	6:00	12:29	18:24	23:50	C	F 7	6:14	12:50	18:48	24:00
		7.0	—0.3	6.8	—0.1			7.3	—0.3	4.9	0.3			7.0	—0.2	4.7	0.7
C	S 7	6:02	12:24	18:18	24:00	C	W 7	6:06	6:24	12:55	18:48	E	S 8	6:26	6:44	13:20	19:22
		7.1	—0.3	5.6	0.0			0.5	7.1	—0.1	4.8			0.9	6.6	0.2	4.6
A	M 8	6:10	6:25	12:42	18:39	A	Th 8	6:32	6:50	13:25	19:20	P	Tu 9	6:58	7:14	13:52	20:09
		0.0	7.2	—0.2	5.3			0.7	6.6	0.4	4.3			1.3	5.9	0.7	4.4
N	Tu 9	6:30	6:50	13:10	19:03	N	F 9	1:00	7:21	14:02	20:07	C	S 10	1:32	7:50	14:30	21:10
		0.1	7.0	0.1	4.9			1.2	5.9	1.0	3.9			1.9	5.1	1.3	4.1
C	W 10	6:56	7:18	13:42	19:35	C	S 10	1:38	8:00	14:48	21:47	E	M 11	2:20	8:52	15:20	23:06
		0.5	6.5	0.6	4.4			1.9	4.9	1.8	3.3			2.5	4.2	1.9	3.9
A	Th 11	1:20	7:52	14:20	20:08	A	S 11	2:00	9:35	19:42	21:47	P	Tu 12	4:03	11:15	17:42	23:06
		1.1	6.8	1.4	3.7			2.8	3.9	2.5	0.0			3.1	3.4	2.5	0.0
N	F 12	1:40	8:33	15:15	22:42	N	M 12	2:40	8:45	13:25	20:48	C	W 13	1:15	9:04	14:25	20:28
		1.9	4.9	2.1	3.2			3.6	3.0	3.7	2.0			4.1	2.4	3.3	2.4
C	S 13	2:10	11:05	21:00	23:50	C	Tu 13	3:13	9:22	15:05	21:20	E	Th 14	2:38	9:45	15:46	21:15
		2.7	4.1	2.2	0.8			4.4	2.0	4.3	1.5			4.9	1.4	3.8	1.9
A	S 14	3:35	9:05	14:23	21:30	A	W 14	3:34	9:55	15:52	21:48	P	F 15	3:25	10:19	16:40	21:55
		3.4	2.8	4.2	1.4			5.2	1.0	4.9	1.0			5.6	0.7	4.2	1.6
N	M 15	4:00	9:41	15:38	21:58	N	Th 15	3:57	10:26	16:27	22:18	C	S 16	4:00	10:51	17:02	22:24
		4.7	1.7	5.0	0.8			5.9	0.3	5.2	0.8			6.2	0.1	4.4	1.4
C	Tu 16	4:13	10:11	16:09	22:22	C	F 16	4:20	10:58	16:58	22:40	E	M 17	4:29	11:20	17:28	22:45
		5.4	0.8	5.6	0.4			6.4	—0.1	5.2	0.8			6.6	—0.2	4.5	1.3
A	W 17	4:31	10:40	16:41	22:48	A	S 17	4:40	11:17	17:19	22:55	P	Tu 18	4:52	11:44	17:42	23:04
		6.0	0.3	6.0	0.1			6.8	—0.3	5.0	0.8			6.8	—0.2	4.4	1.2
N	Th 18	4:50	11:06	17:09	23:07	N	S 18	5:00	11:40	17:35	23:09	C	W 19	5:14	12:00	17:56	23:21
		6.4	—0.2	6.0	0.2			7.0	—0.3	4.8	0.8			6.9	—0.1	4.3	1.1
C	F 19	5:07	11:28	17:29	23:20	C	M 19	5:18	11:58	17:50	23:24	E	S 20	5:36	12:20	18:12	23:43
		6.7	—0.5	5.8	0.3			7.1	—0.2	4.6	0.8			6.9	0.0	4.4	1.1
A	S 20	5:23	11:48	17:45	23:30	A	Tu 20	5:39	12:17	18:06	23:42	P	Th 21	6:00	12:37	18:35	23:50
		6.9	—0.3	6.5	0.4			7.1	0.0	4.5	0.8			6.8	0.1	4.6	0.0
N	S 21	5:39	12:05	18:00	23:42	N	W 21	6:00	12:38	18:24	23:50	C	F 22	6:10	6:26	13:00	19:02
		7.0	—0.2	5.2	0.4			6.9	0.2	4.3	0.0			1.1	6.5	0.3	4.6
C	M 22	5:55	12:23	18:15	23:59	C	Th 22	6:02	6:26	13:03	18:50	E	S 23	6:45	7:00	13:29	19:41
		7.1	0.0	4.8	0.5			0.9	6.6	0.5	4.2			1.2	6.0	0.5	4.7
A	Tu 23	6:16	12:46	18:31	24:00	A	F 23	6:32	6:55	13:32	19:25	P	M 24	1:22	7:34	14:00	20:32
		7.0	0.2	4.5	0.0			1.2	6.0	1.0	4.0			1.6	5.3	0.9	4.7
N	W 24	6:17	6:42	13:11	18:48	N	S 24	1:02	7:24	14:06	20:21	C	Tu 25	2:06	8:18	14:37	21:45
		0.6	6.6	0.7	4.2			1.8	5.1	1.5	3.7			2.2	4.5	1.4	4.5
C	Th 25	6:38	7:05	13:40	19:08	C	S 25	1:36	7:57	14:57	23:27	E	W 26	3:07	9:35	15:26	23:25
		1.0	6.0	1.3	3.8			2.5	4.1	2.2	3.4			2.6	3.8	2.0	4.4
A	F 26	6:55	7:33	14:10	19:40	A	M 26	8:45	11:24	19:52	21:40	P	Th 27	8:15	11:40	17:27	21:17
		1.6	5.2	2.0	3.2			3.2	3.4	3.2	0.0			2.9	3.2	2.5	0.0
N	S 27	1:20	8:00	14:53	21:38	N	Tu 27	2:25	9:06	14:30	20:41	C	F 28	1:14	9:18	14:40	20:30
		2.3	4.2	2.9	0.0			4.0	2.4	3.6	2.1			4.6	1.9	3.2	2.3
C	S 28	3:13	9:10	14:45	21:20	C	W 28	3:00	9:38	15:27	21:15	E	M 29	2:43	9:55	15:52	21:17
		3.7	3.1	3.5	2.0			4.9	1.4	4.2	1.5			5.3	1.1	3.8	1.8
A	M 29	3:48	9:35	15:30	21:38	A	Th 29	3:34	10:08	16:04	21:46	P	S 30	3:32	10:27	16:34	22:02
		4.3	2.1	4.3	1.4			5.7	0.6	4.6	1.1			6.0	0.4	4.3	1.4
N	Tu 30	3:58	10:00	16:00	21:59	N	F 30	4:00	10:35	16:34	22:17	C	M 31	4:10	10:57	17:07	22:35
		5.0	1.2	5.0	0.9			6.4	0.0	4.9	0.8			6.5	—0.1	4.6	1.2
C	W 31	4:11	10:27	16:26	22:19	C						E		4:40	11:25	17:34	23:00
		5.8	0.4	5.4	0.5									6.8	—0.6	4.8	1.1

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is 1.0 feet above the datum of soundings on the Admiralty Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height increased by 1 foot to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it from the soundings and add 1 foot.

The time used is Cosmopolitan Standard, 135th meridian, E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
E	M	1	2:45 2.4	8:12 18.8	15:09 1.5	20:54 12.9	☾	Th	1	3:33 2.9	9:08 12.3	15:49 8.1	21:52 12.6	A	Th	1	2:13 1.4	7:35 14.4	14:21 2.0	20:03 14.8
	Tu	2	3:35 3.1	9:12 12.2	16:00 2.4	22:00 12.4	☾	F	2	4:27 3.7	10:15 11.0	16:42 4.2	23:03 11.9	F	2	2:47 2.1	8:14 18.5	14:52 3.0	20:48 13.8	
A	W	3	4:30 3.7	10:25 11.4	16:56 3.1	23:14 12.1		S	3	5:36 4.3	11:44 10.4	17:56 4.9		☾	S	3	3:30 2.9	9:06 12.2	15:30 4.0	21:47 12.6
	Th	4	5:35 4.1	11:45 11.1	18:00 3.7			S	4	0:21 11.9	6:56 4.5	12:59 10.5	19:24 4.3		S	4	4:30 3.8	10:20 10.8	16:28 5.0	23:10 11.5
N	F	5	0:20 12.3	6:48 4.1	12:52 11.1	19:11 8.9		M	5	1:25 11.3	8:15 4.0	13:53 10.9	20:38 4.2	N	M	5	5:44 4.4	12:00 10.8	18:10 5.5	
	S	6	1:18 12.6	8:02 3.7	13:44 11.3	20:20 3.6	N	Tu	6	2:18 12.8	9:18 3.0	14:46 11.6	21:38 3.2		Tu	6	0:37 11.7	7:15 4.3	13:15 10.8	19:52 4.9
C	S	7	2:05 13.1	9:08 3.0	14:33 11.6	21:17 3.0		W	7	3:05 13.6	10:06 1.8	15:29 12.5	22:25 2.3		W	7	1:40 12.3	8:34 3.5	14:12 11.6	21:04 8.8
	M	8	2:48 13.6	9:52 2.1	15:15 12.1	22:04 2.5		Th	8	3:47 14.3	10:47 0.8	16:08 13.5	23:03 1.4		Th	8	2:35 13.1	9:32 2.2	15:02 12.7	21:58 2.5
N	Tu	9	3:28 14.2	10:32 1.3	15:52 12.7	22:44 2.0	☉	F	9	4:26 15.0	11:23 0.0	16:45 14.6	23:40 0.8		F	9	3:20 14.0	10:20 1.0	15:45 13.9	22:40 1.3
	W	10	4:07 14.7	11:08 0.7	16:24 13.4	23:19 1.7		S	10	5:01 15.6	11:58 -0.5	17:23 15.5			S	10	4:08 14.9	11:00 0.0	16:24 15.1	23:19 0.3
C	Th	11	4:42 15.1	11:42 0.2	16:58 14.2	23:53 1.5		S	11	0:14 0.4	5:38 16.2	12:33 -0.7	18:01 16.1	☉	S	11	4:44 15.6	11:34 -0.7	17:03 16.1	23:55 -0.4
	F	12	5:14 15.5	12:15 0.0	17:36 14.9			M	12	0:49 0.2	6:14 16.4	13:07 -0.7	18:37 16.5	E	M	12	5:20 16.3	12:11 -1.0	17:41 16.8	
E	S	13	0:27 1.4	5:48 15.9	12:49 -0.1	18:12 15.4	E	Tu	13	1:25 0.2	6:50 16.2	13:42 -0.2	19:18 16.4	P	Tu	13	0:31 -0.7	5:58 16.5	12:48 -0.8	18:17 17.1
	S	14	0:59 1.4	6:23 16.1	13:24 0.0	18:52 16.7	P	W	14	2:05 0.5	7:34 15.5	14:22 0.5	20:06 15.6		W	14	1:09 -0.6	6:34 16.3	13:23 -0.3	18:57 16.8
E	M	15	1:36 1.4	7:05 15.8	14:00 0.3	19:38 15.4		Th	15	2:48 1.1	8:23 14.3	15:05 1.6	21:02 14.5		Th	15	1:50 -0.1	7:15 15.5	14:02 0.6	19:42 16.0
	Tu	16	2:18 1.6	7:52 15.0	14:43 0.9	20:31 14.8	☾	F	16	3:40 2.0	9:26 12.8	16:01 2.7	22:13 13.2		F	16	2:33 0.6	8:04 14.3	14:49 1.7	20:36 14.6
C	W	17	3:07 2.0	8:46 13.9	15:30 1.6	21:33 13.9		S	17	4:48 2.9	10:52 11.5	17:13 3.8	23:37 12.6	☾	S	17	3:25 1.6	9:07 12.8	15:43 2.9	21:45 13.1
	Th	18	4:03 2.6	9:55 12.5	16:27 2.6	22:47 13.1		S	18	6:10 3.5	12:27 11.2	18:45 4.1		S	S	18	4:30 2.5	10:32 11.4	16:57 8.9	23:12 12.4
P	F	19	5:15 3.2	11:22 11.7	17:40 3.4		S	M	19	0:57 12.8	7:40 3.3	13:40 11.4	20:14 8.6		M	19	5:45 3.3	12:10 11.1	18:26 4.3	
	S	20	0:07 13.1	6:39 3.4	12:45 11.7	19:07 3.5		Tu	20	2:04 13.2	8:58 2.3	14:48 11.9	21:25 2.5		Tu	20	0:40 12.4	7:14 3.2	13:30 11.4	19:59 3.8
S	S	21	1:17 18.4	8:01 3.0	13:43 11.9	20:27 3.0		W	21	3:01 13.8	9:56 1.1	15:40 12.6	22:19 1.3		W	21	1:50 12.8	8:35 2.3	14:38 12.1	21:11 2.5
	M	22	2:15 13.9	9:11 2.0	14:50 12.4	21:33 2.1		Th	22	3:48 14.3	10:42 0.0	16:21 13.3	23:02 0.5		Th	22	2:49 13.3	9:35 1.2	15:27 12.8	22:05 1.3
●	Tu	23	3:07 14.4	10:07 0.9	15:40 12.9	22:26 1.3	●	F	23	4:30 14.8	11:20 -0.6	16:54 14.0	23:39 0.0		F	23	3:35 13.9	10:21 0.1	16:05 13.6	22:45 0.4
	W	24	3:54 14.9	10:53 0.0	16:24 13.4	23:12 0.7		S	24	5:05 15.1	11:54 -0.9	17:23 14.7			S	24	4:16 14.4	11:00 -0.5	16:37 14.3	23:21 -0.1
E	Th	25	4:37 15.2	11:38 -0.6	17:01 14.0	23:50 0.4		S	25	0:12 -0.1	5:37 15.3	12:26 -0.9	17:54 15.2	●	S	25	4:49 14.7	11:33 -0.7	17:03 14.9	23:52 -0.2
	F	26	5:14 15.4	12:09 -0.9	17:37 14.4		E	M	26	0:42 0.0	6:07 15.4	12:56 -0.4	18:24 15.5		M	26	5:15 14.8	12:04 -0.5	17:29 15.4	
S	S	27	0:27 0.4	5:51 15.4	12:45 -0.8	18:12 14.7		Tu	27	1:13 0.3	6:33 15.2	13:26 0.2	18:52 15.6		Tu	27	0:21 -0.1	5:42 14.9	12:32 0.0	17:58 15.8
	S	28	1:02 0.6	6:25 15.4	13:20 -0.4	18:47 14.9		W	28	1:44 0.9	7:02 15.0	13:53 1.0	19:26 15.4		W	28	0:50 0.2	6:10 14.9	13:00 0.7	18:21 16.0
A	M	29	1:37 1.0	6:58 15.0	13:55 0.1	19:25 14.8								A	Th	29	1:17 0.6	6:33 15.0	13:22 1.5	18:51 15.9
	Tu	30	2:13 1.5	7:36 14.4	14:31 1.0	20:07 14.3									F	30	1:45 1.1	7:05 14.8	13:44 2.3	19:26 15.5
	W	31	2:52 2.2	8:17 13.4	15:08 2.1	20:55 13.6									S	31	2:16 1.6	7:40 14.3	14:10 2.9	20:08 14.7

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 7.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Rangoon Mean Local Civil, for the meridian 96° 10' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☉, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.											
Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.					W.	No.					W.	Mo.							
N	S	1	2:54 2.2	8:28 13.3	14:47 3.5	20:58 13.4	D	Tu	1	3:20 2.3	9:07 12.7	15:22 3.8	21:30 12.7	E	F	1	4:55 2.4	11:18 12.9	17:30 3.5	23:42 12.4	
	M	2	3:43 2.9	9:31 11.9	15:40 4.3	22:07 12.0		W	2	4:18 2.8	10:30 11.9	16:37 4.4	22:57 11.9		S	2	6:01 2.7	12:30 13.5	18:49 3.2		
	Tu	3	4:50 3.7	11:08 10.9	17:06 5.2	23:43 11.6		Th	3	5:30 3.3	11:55 12.0	18:08 4.4			S	3	0:55 12.8	7:13 2.6	13:28 14.2	20:01 2.0	
	W	4	6:15 4.0	12:37 11.2	18:57 4.9			F	4	0:25 12.2	6:48 8.1	13:06 12.8	19:34 3.7		M	4	1:52 13.2	8:21 2.2	14:19 14.9	21:05 1.8	
E	Th	5	1:05 12.1	7:40 3.5	13:35 12.1	20:21 3.9	E	S	5	1:26 12.9	8:00 2.5	13:56 13.8	20:42 2.6	P	Tu	5	2:36 13.6	9:21 1.7	15:07 15.4	22:01 0.9	
	F	6	2:03 12.9	8:49 2.4	14:30 13.3	21:24 2.6		S	6	2:22 13.6	9:02 1.7	14:45 14.8	21:39 1.4		W	6	3:25 14.1	10:17 1.2	15:52 15.8	22:50 0.2	
	S	7	2:52 13.7	9:42 1.2	15:16 14.4	22:10 1.2		M	7	3:05 14.2	9:58 0.9	15:28 15.7	22:16 0.5		Th	7	4:12 14.3	11:05 0.9	16:35 16.0	23:36 -0.3	
	S	8	3:35 14.6	10:27 0.3	15:58 15.6	22:54 0.2		Tu	8	3:50 14.9	10:40 0.3	16:15 16.8	23:10 -0.3		S	8	4:56 14.4	11:50 0.7	17:18 16.0		
O	M	9	4:17 15.4	11:09 -0.4	16:40 16.4	23:31 -0.5	P	W	9	4:31 15.2	11:25 0.2	16:56 16.6	23:52 -0.6	C	S	9	0:20 -0.5	5:40 14.3	12:37 1.0	18:00 15.6	
	Tu	10	4:55 15.9	11:45 -0.6	17:19 17.0			Th	10	5:14 15.2	12:07 0.3	17:37 16.6			S	10	1:08 -0.4	6:31 14.2	13:23 1.3	18:45 15.2	
	W	11	0:10 -0.9	5:37 16.0	12:26 -0.4	17:57 17.1		F	11	0:35 -0.7	6:00 15.0	12:50 0.7	18:16 16.3		M	11	1:50 -0.1	7:20 13.8	14:09 1.7	19:38 14.3	
	Th	12	0:51 -0.8	6:17 15.8	13:05 0.1	18:36 16.8		S	12	1:20 -0.4	6:43 14.6	13:37 1.2	19:02 15.5		Tu	12	2:37 0.4	8:18 13.3	15:00 2.3	20:37 13.3	
S	F	13	1:35 -0.4	6:58 15.1	13:48 0.9	19:20 15.8	C	S	13	2:05 0.1	7:35 13.8	14:25 2.0	19:56 14.3	C	W	13	3:28 1.0	9:25 12.8	15:55 2.7	21:48 12.6	
	S	14	2:20 0.3	7:48 14.1	14:37 1.9	20:14 14.5		M	14	2:56 0.7	8:39 12.8	15:18 2.7	21:02 13.1		Th	14	4:21 1.7	10:39 12.7	16:58 3.1	23:02 12.3	
	S	15	3:12 1.2	8:54 12.7	15:32 3.0	21:22 13.0		Tu	15	3:52 1.6	9:58 12.2	16:20 3.4	22:22 12.4		E	F	15	5:20 2.2	11:47 12.8	17:55 3.4	
	M	16	4:12 2.1	10:18 11.7	16:40 3.8	22:48 12.3		W	16	4:53 2.1	11:21 12.1	17:31 3.7	23:45 12.4		S	16	0:12 12.3	6:25 2.5	12:45 13.0	19:16 3.3	
C	Tu	17	5:20 2.8	11:51 11.5	18:01 4.2		E	Th	17	6:08 2.5	12:33 12.5	18:50 3.6		A	S	17	1:13 12.2	7:30 2.6	13:35 13.4	20:18 2.8	
	W	18	0:17 12.3	6:42 2.9	13:07 11.9	19:30 3.7		F	18	0:55 12.6	7:15 2.3	13:30 13.0	20:03 2.9		M	18	2:03 12.2	8:32 2.5	14:21 13.7	21:15 2.3	
	Th	19	1:29 12.7	8:00 2.3	14:10 12.5	20:45 2.7		S	19	1:53 12.8	8:20 1.9	14:20 13.5	21:03 2.1		Tu	19	2:47 12.2	9:27 2.3	15:00 13.9	22:02 1.8	
	F	20	2:28 13.2	9:08 1.4	15:00 13.2	21:40 1.5		S	20	2:40 12.9	9:15 1.4	15:00 13.9	21:52 1.4		W	20	3:25 12.2	10:13 2.2	15:37 14.1	22:42 1.5	
E	S	21	3:15 13.5	9:58 0.5	15:38 13.9	22:22 0.7	A	M	21	3:21 13.0	10:00 1.1	15:35 14.3	22:31 1.0	N	Th	21	3:58 12.3	10:52 2.1	16:14 14.3	23:17 1.2	
	S	22	3:53 13.7	10:32 0.1	16:09 14.4	23:00 0.3		Tu	22	3:56 13.0	10:40 1.1	16:07 14.6	23:07 0.8		F	22	4:29 12.7	11:27 2.2	16:44 14.5	23:50 1.0	
	M	23	4:24 13.9	11:09 0.1	16:36 14.9	23:30 0.2		W	23	4:25 13.1	11:15 1.3	16:38 14.8	23:38 0.7		S	23	5:00 13.1	12:00 2.4	17:16 14.7		
	Tu	24	4:50 14.0	11:35 0.3	17:04 15.2	23:59 0.2		Th	24	4:51 13.3	11:47 1.7	17:07 14.9			S	24	0:22 0.9	5:37 13.7	12:32 2.4	17:45 15.9	
A	W	25	5:17 14.1	12:08 0.8	17:30 15.5		N	F	25	0:09 0.8	5:20 13.6	12:17 2.1	17:34 15.1	D	M	25	0:57 0.8	6:10 14.2	13:03 2.5	18:22 15.3	
	Th	26	0:28 0.4	5:45 14.3	12:35 1.5	17:55 15.7		S	26	0:40 0.8	5:51 13.9	12:42 2.5	18:01 15.4		Tu	26	1:31 0.8	6:50 14.6	13:38 2.5	19:04 15.2	
	F	27	0:58 0.7	6:10 14.5	12:59 2.1	18:24 15.8		S	27	1:10 1.0	6:22 14.4	13:11 2.8	18:38 15.5		W	27	2:06 0.9	7:38 14.6	14:18 2.5	19:53 14.7	
	S	28	1:25 1.0	6:40 14.7	13:24 2.5	18:58 15.7		M	28	1:45 1.1	7:06 14.4	13:42 3.0	19:20 15.1		Th	28	2:47 1.2	8:32 14.4	15:06 2.5	20:47 13.9	
N	S	29	1:55 1.4	7:18 14.5	13:48 3.0	19:40 15.1	D	Tu	29	2:20 1.3	7:54 14.1	14:23 3.1	20:08 14.4	E	F	29	3:34 1.5	9:35 13.9	16:00 2.6	21:52 13.0	
	M	30	2:33 1.8	8:08 13.8	14:30 3.3	20:30 14.0		W	30	3:03 1.7	8:51 13.5	15:15 3.2	21:09 13.4		S	30	4:27 2.0	10:44 13.5	17:00 2.9	23:08 12.4	
							D	Th	31	3:55 2.0	10:02 13.0	16:18 3.4	22:22 12.5								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 7.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Rangoon Mean Local Civil, for the meridian 96° 10' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.				
Moon	Day of— W. Mo.	Time and Height of High and Low Water.			Moon	Day of— W. Mo.	Time and Height of High and Low Water.			Moon	Day of— W. Mo.	Time and Height of High and Low Water.		
S	1	5:28 2.5	11:55 13.7	18:15 8.0	P W	1	1:10 12.1	7:36 3.4	13:38 13.8	20:26 2.5	I	3:02 12.8	9:44 1.7	15:15 14.3
M	2	0:25 12.4	6:28 2.9	12:59 14.0	S Th	2	2:06 12.4	8:50 2.8	14:34 14.8	21:30 1.6	2	3:50 13.5	10:32 0.7	16:00 14.8
Tu	3	1:28 12.6	7:52 2.9	13:55 14.4	F	3	3:04 12.8	9:55 2.0	15:21 14.6	22:23 0.7	3	4:25 14.1	11:15 0.3	16:37 15.0
P W	4	2:17 12.9	9:01 2.4	14:46 14.8	C S	4	3:52 13.8	10:11 1.3	16:10 15.0	23:00 0.0	4	5:00 14.8	11:50 0.0	17:14 15.2
Th	5	3:10 13.3	10:02 1.8	15:34 15.2	S	5	4:25 13.8	11:29 0.8	16:52 15.1	23:50 -0.4	5	5:05 -0.6	5:30 15.1	12:25 0.1
F	6	4:00 13.5	10:54 1.4	16:20 15.4	M	6	5:15 14.2	12:06 0.6	17:31 15.1	24:40 -0.3	6	5:33 -0.3	6:05 15.4	12:58 0.5
S	7	4:44 13.9	11:40 1.1	17:05 15.4	Tu	7	6:02 -0.5	12:47 14.5	18:11 0.6	25:11 15.1	7	6:12 0.4	6:35 15.4	13:32 1.0
S	8	5:05 -0.3	5:28 14.0	12:24 1.0	W	8	6:55 -0.3	13:25 14.7	18:47 0.9	25:47 14.8	8	7:00 1.3	7:10 15.0	14:06 1.6
M	9	5:50 -0.4	6:15 14.1	13:05 1.1	E Th	9	7:44 0.1	14:04 14.7	19:28 1.3	26:14 14.2	9	7:50 2.3	7:50 14.3	14:45 2.3
Tu	10	6:30 -0.2	7:00 14.1	13:50 1.4	F	10	8:32 0.9	14:44 14.3	20:10 1.9	26:40 13.8	10	8:37 3.3	8:37 13.4	15:20 3.0
W	11	7:12 0.2	7:49 13.9	14:34 1.7	S	11	9:20 1.3	15:20 13.6	20:44 2.5	27:04 12.3	11	9:24 4.2	9:24 12.2	15:48 3.7
Th	12	7:55 0.6	8:42 13.5	15:21 2.3	C S	12	10:08 2.7	16:00 12.8	21:10 3.2	27:20 11.3	12	10:10 5.0	10:10 11.5	16:15 4.2
F	13	8:40 1.6	9:45 13.1	16:13 2.8	A M	13	10:55 3.7	16:42 12.3	21:32 3.8	27:36 10.3	13	10:55 5.2	10:55 11.8	16:45 4.0
S	14	9:25 2.3	10:30 12.7	17:05 3.3	Tu	14	11:40 4.4	17:22 12.2	21:44 4.1	27:50 9.8	14	11:40 11.0	11:40 11.7	17:15 4.7
S	15	10:10 3.1	11:14 12.7	17:50 3.7	W	15	12:25 10.8	18:04 12.4	22:00 4.6	28:04 9.8	15	12:25 11.8	12:25 11.8	17:45 5.3
M	16	10:55 11.5	12:00 3.6	18:35 4.0	N Th	16	13:10 11.0	18:45 12.8	22:15 5.1	28:18 9.8	16	13:10 12.8	13:10 12.8	18:15 5.8
Tu	17	11:40 11.4	12:45 3.7	19:20 4.1	F	17	13:55 11.6	19:30 13.5	22:30 5.6	28:32 9.8	17	13:55 13.9	13:55 13.9	18:45 6.3
W	18	12:25 11.4	13:30 3.4	20:05 4.4	S	18	14:40 12.3	20:15 13.9	22:45 6.1	28:46 9.8	18	14:40 15.0	14:40 15.0	19:15 6.8
Th	19	13:10 11.7	14:15 3.0	20:50 4.7	S	19	15:25 13.1	21:00 14.4	23:00 6.6	29:00 9.8	19	15:25 16.0	15:25 16.0	19:45 7.3
F	20	13:55 12.1	15:00 2.6	21:35 5.0	● M	20	16:10 14.1	21:15 15.0	23:15 7.1	29:14 9.8	20	16:10 16.6	16:10 16.6	20:15 7.8
S	21	14:40 12.7	15:45 2.3	22:20 5.3	Tu	21	16:55 14.9	22:10 15.5	23:30 7.6	29:28 9.8	21	16:55 17.1	16:55 17.1	20:45 8.3
S	22	15:25 13.3	16:30 2.0	23:05 5.6	W	22	17:40 -0.1	22:55 15.6	23:45 8.1	29:42 9.8	22	17:40 17.7	17:40 17.7	21:15 8.8
M	23	16:10 0.6	17:15 1.4	23:50 5.9	E Th	23	18:25 0.0	23:40 15.7	24:00 8.6	29:56 9.8	23	18:25 1.1	18:25 16.0	21:45 9.3
Tu	24	16:55 0.4	18:00 1.4	24:35 6.2	F	24	19:10 0.3	24:25 16.2	24:15 9.1	30:10 9.8	24	19:10 2.0	19:10 16.3	22:15 9.8
W	25	17:40 1.1	18:45 1.4	25:20 6.5	S	25	19:55 0.8	25:10 16.7	24:30 9.6	30:24 9.8	25	19:55 3.0	19:55 16.3	22:45 10.3
Th	26	18:25 0.5	19:30 1.5	26:05 6.8	S	26	20:40 1.6	26:05 17.2	24:45 10.1	30:38 9.8	26	20:40 3.8	20:40 16.3	23:15 10.8
F	27	19:10 0.8	20:15 1.6	26:50 7.1	M	27	21:25 2.5	26:50 17.7	24:55 10.6	30:52 9.8	27	21:25 4.2	21:25 16.3	23:45 11.3
S	28	19:55 1.3	21:00 1.6	27:35 7.4	Tu	28	22:10 3.4	27:35 18.2	25:10 11.1	31:06 9.8	28	22:10 11.7	22:10 16.3	24:15 11.8
S	29	20:40 2.1	21:45 1.7	28:20 7.7	W	29	22:55 3.9	28:20 18.7	25:25 11.6	31:20 9.8	29	22:55 12.5	22:55 16.3	24:45 12.3
M	30	21:25 2.9	22:30 1.8	29:05 8.0	Th	30	23:40 11.7	29:05 19.2	25:40 12.1	31:34 9.8	30	23:40 13.3	23:40 16.3	25:15 12.8
Tu	31	22:10 11.9	23:15 1.9	29:50 8.3	F	31	24:25 12.2	29:50 19.7	25:55 12.6	31:48 9.8				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 7.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Rangoon Mean Local Civil, for the meridian 96° 10' E. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.), and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ♀, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 7.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Rangoon Mean Local Civil, for the meridian  $96^{\circ} 10' E$ ; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.																			
Day of		Time and Height of High and Low Water.								Day of		Time and Height of High and Low Water.								Day of		Time and Height of High and Low Water.							
Mo.	W. Mo.									Mo.	W. Mo.									Mo.	W. Mo.								
E	M 1	1:00	5:04	13:27	17:28	D	Th 1	1:00	5:58	13:23	18:23	A	Th 1	0:09	4:44	12:20	17:03												
	Tu 2	1:25	5:45	13:44	18:12		F 2	1:30	6:47	13:58	19:23		F 2	0:22	5:23	12:32	19:46												
	W 3	1:55	6:25	14:25	19:14		S 3	2:13	7:52	14:35	20:55		S 3	0:07	6:07	12:56	18:35												
A	Th 4	2:46	7:43	15:25	21:08	S	4	3:00	9:37	15:20	22:35	N	S 4	1:20	7:02	13:45	19:42												
	F 5	4:20	9:37	16:57	22:35		M 5	4:13	11:10	16:39	23:45		M 5	2:07	8:19	14:31	21:30												
	S 6	5:50	10:59	18:12	23:35		Tu 6	7:22	12:00	19:38			Tu 6	3:10	10:17	17:54	23:08												
N	S 7	6:58	11:48	19:12		W	7	0:29	8:12	12:41	20:25	Th	7	6:42	11:33	19:05													
	M 8	0:15	7:50	12:27	20:04		Th 8	1:07	8:58	13:18	21:09		8	0:03	7:40	12:20	20:00												
	Tu 9	0:50	8:34	13:01	20:48		F 9	1:44	9:41	13:54	21:43		9	0:47	8:28	13:00	20:45												
O	W 10	1:25	9:17	13:34	21:30	S	10	2:16	10:11	14:28	22:20	S	10	1:25	9:09	13:37	21:25												
	Th 11	1:55	9:55	14:05	22:07		S 11	2:52	10:42	15:00	22:58		11	2:00	9:45	14:12	22:02												
	F 12	2:30	10:31	14:42	22:41		M 12	3:28	11:17	15:43	23:30		M 12	2:33	10:20	14:46	22:36												
P	S 13	3:04	11:05	15:20	23:12	Tu	13	4:04	11:50	16:23		P	Tu 13	3:08	10:55	15:22	23:12												
	S 14	3:40	11:37	15:56			W 14	0:00	4:44		17:07		W 14	3:45	11:29	15:52	23:47												
	M 15	4:20	12:05	16:40			Th 15	0:38	5:27	12:55	17:52		Th 15	4:22	12:03	16:43													
E	Tu 16	0:10	5:03	12:33	17:27	C	F 16	1:10	6:14	13:35	18:43	F	16	0:23	5:05	12:40	17:27												
	W 17	0:45	5:50	13:10	18:13		S 17	2:00	7:13	14:37	20:07		S 17	1:05	5:50	13:24	18:18												
	Th 18	1:20	6:41	13:55	19:20		S 18	3:34	9:00		22:25		S 18	1:53	6:45	14:26	19:30												
C	F 19	2:20	7:50	14:58	20:57	S	M 19	5:30	10:55		23:38	M	19	3:20	8:30	15:07	22:15												
	S 20	4:00	9:33	16:55	22:38		Tu 20	6:48	12:08	19:13			Tu 20	5:08	10:55	17:40	23:27												
	S 21	5:57	11:10	18:28	23:50		W 21	0:35	7:47	12:50	20:07		W 21	6:20	12:00	18:50													
P	M 22	7:06	12:07	19:31		Th	22	1:15	8:33	13:30	20:52	Th	22	0:23	7:23	12:42	19:45												
	Tu 23	0:39	8:05	12:54	20:22		F 23	1:51	9:16	14:01	21:32		F 23	1:06	8:10	13:20	20:30												
	W 24	1:20	8:50	13:34	21:05		S 24	2:20	9:55	14:28			S 24	1:33	8:53	13:43	21:12												
S	Th 25	1:58	9:35	14:06	21:50	S	25	2:45	10:32	14:52	22:46	S	25	2:05	9:33	14:12	21:50												
	F 26	2:30	10:15	14:38	22:30		M 26	3:10	11:07	15:19	23:20		M 26	2:28	10:10	14:32													
	S 27	3:00	10:52	15:08	23:07		Tu 27	3:38	11:36	15:50	23:47		Tu 27	2:47	10:42	14:55	22:57												
M	S 28	3:30	11:30	15:40	23:40	W	28	4:09	12:00	16:25		W	28	3:11	11:11	15:23	23:25												
	M 29	4:00	12:08	16:15			29	10:1	0:9	9:6			29	3:42	11:34	15:56	23:45												
	Tu 30	0:12	4:37	12:31	18:56		E	30						30	4:14	11:48	16:31	23:55											
W 31	0:40	5:15	13:00	17:37								31	4:52	11:55	17:14														
	1:5	5:5	1:4	8:8									9:5	1:8	9:6														

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 5.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Calcutta Mean Local Civil, for the meridian 88° 19' E., 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3 47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.				
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			Moon.	Day of— W. Mo.	Time and Height of High and Low Water.		
N	S 1	0:06	5:36	12:18	18:02	Tu 1	0:40	6:02	12:45	18:32	F 1	2:19	7:58	14:40
		2.3	8.7	2.1	8.9		2.3	8.2	2.5	8.6		2.1	7.6	2.7
	M 2	0:45	6:27	13:10	19:01	W 2	1:30	7:07	13:54	19:45	E S 2	3:26	9:40	16:25
		2.5	7.9	2.6	8.1		2.5	7.4	2.8	7.9		2.3	8.0	2.9
	Tu 3	1:45	7:36	14:07	20:28	Th 3	2:32	8:40	15:02	21:37	S 3	5:13	10:58	18:12
D		2.9	7.0	3.0	7.5		2.8	7.2	3.0	7.7		2.3	8.8	2.6
	W 4	2:46	9:25	15:22	22:24	F 4	4:35	10:24	17:40	23:00	M 4	6:38	11:50	19:17
		3.4	8.8	3.3	7.6		2.9	7.9	3.0	8.4		1.9	9.6	1.8
	Th 5	5:52	11:08	18:29	23:35	S 5	6:14	11:30	18:50	23:51	Tu 5	0:07	7:39	12:32
		3.3	7.5	3.0	8.5		2.3	8.8	2.2	9.2		9.4	1.3	10.2
E	F 6	7:02	11:56	19:28		E S 6	7:16	12:14	19:47		P W 6	0:50	8:29	13:12
		2.2	8.6	1.8			1.5	9.7	1.3			9.7	0.8	10.7
	S 7	0:20	7:52	12:59	20:17	M 7	0:34	8:07	12:53	20:34	O Th 7	1:29	9:15	13:50
		9.5	1.2	9.5	0.9		9.9	0.8	10.3	0.6		9.8	0.6	11.0
	S 8	1:00	8:37	13:17	20:58	O Tu 8	1:10	8:51	13:30	21:17	S F 8	2:04	10:00	14:26
O		10.1	0.5	10.3	0.3		10.3	0.4	11.0	0.2		9.8	0.2	11.0
	M 9	1:36	9:18	13:53	21:40	P W 9	1:48	9:33	14:07	22:00	S 9	2:43	10:40	15:05
		10.6	0.1	10.8	-0.2		10.5	0.2	11.2	-0.1		9.6	0.5	10.9
	Tu 10	2:10	9:55	14:26	22:19	Th 10	2:25	10:14	14:43	22:40	S 10	3:21	11:22	15:45
		10.8	-0.2	11.2	-0.2		10.4	0.1	10.3	0.0		9.3	0.6	10.5
P	W 11	2:47	10:35	15:04	22:57	F 11	3:00	10:52	15:21	23:20	M 11	4:03	12:05	16:26
		11.0	-0.2	11.3	-0.2		10.2	0.3	11.1	0.2		8.8	0.9	9.9
	Th 12	3:22	11:11	15:40	23:35	S S 12	3:40	11:36	16:02		Tu 12	0:35	4:46	12:50
		10.7	0.1	11.1	0.1		9.7	0.6	10.6			0.7	8.4	1.4
	F 13	4:00	11:48	16:21		S 13	0:04	4:21	12:20	16:45	W 13	1:20	5:37	13:39
S		10.2	-0.5	10.6			0.5	9.1	1.0	9.9		1.2	7.8	2.0
	S 14	0:15	4:41	12:30	17:05	M 14	0:50	5:08	13:07	17:35	C Th 14	2:08	6:37	14:30
		0.2	9.5	1.0	9.8		1.0	8.3	1.7	8.9		1.6	7.2	2.4
	S 15	1:00	5:28	13:18	17:55	C Tu 15	1:40	6:01	14:02	18:33	E F 15	3:04	9:00	15:38
		1.3	8.5	1.7	8.7		1.6	7.4	2.2	7.9		2.0	7.0	2.8
C	M 16	1:52	6:22	14:18	19:01	W 16	2:39	7:20	15:07	21:07	S 16	4:10	10:27	16:55
		2.0	7.5	2.4	7.6		2.1	6.7	2.7	7.3		2.2	7.5	2.8
	Tu 17	3:02	7:58	15:39	22:00	Th 17	3:47	10:15	16:28	22:35	S 17	5:22	11:15	18:07
		2.6	6.6	3.0	7.4		2.3	7.2	2.7	7.8		2.1	8.2	2.5
	W 18	4:29	10:42	17:10	23:10	F 18	5:08	11:10	17:40	23:25	M 18	6:28	12:00	19:07
E		2.6	7.2	2.6	8.0		2.0	7.9	2.3	8.3		1.9	8.6	2.0
	Th 19	5:47	11:39	18:21		E S 19	6:10	11:55	18:45		A Tu 19	0:10	7:25	12:34
		2.0	8.0	1.8			1.6	8.6	1.6			8.0	1.5	9.0
	F 20	0:02	6:50	12:25	19:18	S 20	0:10	7:06	12:30	19:37	W 20	0:42	8:10	13:02
		8.6	1.2	8.6	1.0		8.6	1.1	9.0	1.1		8.3	1.3	9.3
N	S 21	0:40	7:41	12:59	20:05	M 21	0:42	7:53	13:00	20:24	Th 21	1:10	8:55	13:28
		9.1	0.5	8.9	0.3		8.8	0.8	9.3	0.7		8.5	1.1	9.6
	S 22	1:13	8:25	13:25	20:48	A Tu 22	1:10	8:38	13:25	21:05	● F 22	1:37	9:35	13:55
		9.3	0.1	9.3	0.1		8.8	0.6	9.5	0.5		8.6	1.3	9.9
	● M 23	1:40	9:05	13:50	21:28	● W 23	1:34	9:17	13:48	21:42	N S 23	2:04	10:10	14:25
A		9.2	0.0	9.4	0.0		8.8	0.8	9.7	0.7		8.9	1.3	10.3
	Tu 24	2:09	9:43	14:06	22:03	Th 24	1:57	9:55	14:10	22:20	S 24	2:36	10:42	15:00
		9.3	0.2	9.7	0.3		8.9	1.0	9.9	1.0		9.1	1.6	10.6
	W 25	2:20	10:20	14:32	22:38	F 25	2:24	10:30	14:40	22:54	M 25	3:13	11:16	15:35
		9.3	0.6	9.9	0.8		9.1	1.5	10.2	1.2		9.3	1.8	10.6
N	Th 26	2:45	10:49	15:00	23:05	N S 26	2:54	11:00	15:13	23:28	Tu 26	3:51	11:41	16:15
		9.5	1.3	10.2	1.3		9.3	1.9	10.4	2.0		9.4	1.7	10.5
	F 27	3:15	11:15	15:31	23:33	S 27	3:28	11:23	15:50	23:48	W 27	0:08	4:35	12:05
		9.6	1.8	10.4	1.7		9.3	2.1	10.5	1.8		1.3	9.2	1.7
	S 28	3:50	11:28	16:10	23:50	M 28	4:08	11:42	16:30		Th 28	0:39	5:22	12:39
N		9.6	1.9	10.2	2.0		9.2	2.1	10.2			1.4	9.0	1.9
	S 29	4:27	11:37	16:50		Tu 29	0:14	4:50	12:02	17:15	D F 29	1:10	6:17	13:18
		9.3	2.0	10.0			1.9	8.9	2.1	9.7		1.5	8.5	2.1
	M 30	0:07	5:14	12:00	17:37	W 30	0:45	5:42	12:42	18:10	E S 30	1:54	7:20	14:15
		2.2	8.8	2.1	9.3		2.0	8.5	2.3	9.1		1.7	8.1	2.4
	D Th 31	1:18	6:42	13:40	19:13		2.0	7.9	2.6	8.4				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 5.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Calcutta Mean Local Civil, for the meridian 88° 19' E.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST					SEPTEMBER							
Moon	Day of— W. Mo.	Time and Height of High and Low Water.				Moon	Day of— W. Mo.	Time and Height of High and Low Water.				Moon	Day of— W. Mo.	Time and Height of High and Low Water.			
	S 1	2:38 1 9	8:57 8 0	14:58 2 8	21:35 7 9		P W 1	8:56 2 5	11:19 8 5	18:52 2 4	23:42 7 9		S 1	0:30 8 3	7:55 0 8	12:55 9 5	20:22 0 2
	M 2	3:24 2 2	10:28 8 5	17:20 3 0	22:57 8 2		S 2	7:15 1 8	12:13 9 2	19:52 1 4			S 2	1:10 8 8	8:42 0 0	13:32 9 9	21:05 -0 5
	Tu 3	5:50 2 3	11:33 9 2	19:10 2 2	23:50 8 5		■	0:30 8 5	8:10 0 9	12:58 9 8	20:42 0 5		M 3	1:44 9 2	9:25 -0 5	14:04 10 1	21:45 -0 8
P	W 4	7:28 1 5	12:20 9 8	20:07 1 8		○	4	1:14 8 8	8:59 0 1	13:37 10 1	21:25 -0 2		Tu 4	2:12 9 5	10:00 -0 6	14:32 10 3	22:22 -0 7
	Th 5	8:35 9 0	8:24 0 9	13:02 10 2	20:58 0 5		5	1:50 9 0	9:40 -0 1	14:12 10 4	22:05 -0 6	E	W 5	2:40 9 7	10:39 -0 5	15:00 10 3	23:00 -0 4
S	F 6	1:18 9 1	9:10 0 4	15:42 10 5	21:42 0 0		6	2:28 9 2	10:22 -0 5	14:45 10 5	22:42 -0 6		Th 6	3:10 9 8	11:11 0 1	15:27 10 4	23:28 0 2
○	S 7	1:56 9 3	9:57 0 0	14:20 10 7	22:21 -0 3		7	2:58 9 8	10:59 -0 2	15:18 10 5	23:20 -0 4		F 7	3:40 9 9	11:38 0 3	16:00 10 2	23:50 0 8
	S 8	2:35 9 2	10:38 0 1	14:58 10 6	23:05 -0 3		8	3:30 9 4	11:33 0 2	15:52 10 3	23:55 0 1		S 8	4:15 9 9	11:47 1 5	16:32 9 8	
	M 9	3:12 9 2	11:15 0 2	15:35 10 4	23:40 -0 1	E	9	4:05 9 8	12:04 0 7	16:28 10 0			S 9	0:00 1 5	4:51 9 6	11:53 2 1	17:12 9 8
	Tu 10	3:51 9 0	11:52 0 5	16:15 10 1			10	0:22 0 7	4:45 9 2	12:30 1 4	17:05 9 5	A	M 10	0:10 2 0	5:31 9 1	12:08 2 7	17:55 8 4
	W 11	0:30 0 3	4:30 8 8	12:29 1 0	16:56 9 6		11	0:48 1 3	5:25 8 8	12:50 2 2	17:48 8 8	☾	Tu 11	0:30 2 4	6:22 8 2	12:58 3 1	18:47 7 4
E	Th 12	0:55 0 8	5:16 8 4	13:07 1 6	17:40 9 0	☾	12	1:10 2 0	6:13 8 2	13:15 2 8	18:35 7 9		W 12	1:26 3 0	7:25 7 4	13:57 3 6	20:02 6 5
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	S 14	2:10 1 9	7:05 7 8	14:33 2 9	19:14 7 4		14	2:10 3 0	8:34 7 0	14:50 8 9	21:21 6 5		F 14	3:28 3 8	11:00 7 4	15:40 8 1	23:20 7 1
	S 15	3:05 2 5	8:25 7 1	15:32 3 3	21:05 6 9		15	3:18 3 5	10:27 7 3	15:10 8 5	23:00 6 7		S 15	7:02 2 7	11:55 8 4	16:33 2 0	
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	Tu 17	6:01 2 7	11:21 8 0	18:48 2 8	23:40 7 4		17	7:35 2 1	12:20 8 7	20:05 1 7			M 17	0:50 8 9	8:37 0 5	13:12 10 1	21:00 0 2
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	M 23	2:30 9 3	10:36 0 6	14:52 10 7	23:00 0 4	E	23	3:27 10 6	11:00 0 5	15:48 11 3	23:20 0 8		S 23	4:25 10 9	11:42 0 9	16:45 10 3	23:58 1 0
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	M 30	2:09 1 9	8:10 7 9	14:35 2 9	20:48 7 5	Th	30	6:42 2 8	11:10 8 0	18:20 2 4	23:44 7 6		S 30	8:25 8 4	7:35 0 8	12:45 9 8	20:00 0 2
	Tu 31	3:01 2 5	9:52 8 0	17:14 3 2	22:32 7 4	F	31	6:58 1 9	12:12 8 9								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 5.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Calcutta Mean Local Civil, for the meridian 88° 19' E. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon, all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon: for instance, 15:47 is 3:47 p.m.

●, new moon; ☽, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.











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The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 1.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Madras Mean Local Civil, for the meridian 80° 18' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon, all hours less than 12<sup>h</sup> in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon, for instance 15.47 is 3.47 p.m.

● new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.





JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
P	S 1	1:46 0.3	9:01 1.5	15:10 0.9	20:29 1.1	P	W 1	8:34 0.5	11:28 1.6	19:47 0.8	23:49 1.0	O	S 1	1:03 1.3	6:50 0.5	13:15 1.7	19:42 0.3
	M 2	2:57 0.4	10:36 1.6	17:23 0.8	22:38 1.0		Th 2	5:17 0.5	12:37 1.7	19:32 0.5			S 2	1:47 1.5	7:40 0.3	13:53 1.8	20:10 0.2
	Tu 3	4:19 0.4	11:52 1.7	18:48 0.7			F 3	1:02 1.2	6:31 0.4	13:26 1.9	20:08 0.3		M 3	2:29 1.7	8:20 0.2	14:26 1.9	20:38 0.0
S	W 4	0:06 1.1	5:38 0.4	12:50 1.9	19:37 0.5	O	S 4	1:58 1.4	7:35 0.3	14:07 2.0	20:32 0.2	E	Tu 4	2:56 1.8	8:51 0.2	14:58 2.0	21:08 -0.1
	Th 5	1:07 1.2	6:43 0.3	13:38 2.0	20:13 0.3		S 5	2:37 1.5	8:22 0.2	14:42 2.0	21:00 0.1		W 5	3:23 1.9	9:18 0.1	15:27 1.9	21:33 -0.1
	F 6	1:58 1.3	7:37 0.2	14:18 2.1	20:46 0.2		M 6	3:15 1.7	8:59 0.2	15:14 2.0	21:29 0.0		Th 6	3:49 1.9	9:46 0.2	15:52 1.9	21:58 -0.1
C	S 7	2:43 1.4	8:23 0.2	14:54 2.1	21:17 0.1	E	Tu 7	3:48 1.7	9:33 0.2	15:44 2.0	21:58 0.0	N	F 7	4:16 1.9	10:11 0.3	16:14 1.7	22:22 0.0
	S 8	3:22 1.5	9:08 0.2	15:28 2.1	21:47 0.1		W 8	4:19 1.8	10:06 0.3	16:16 1.9	22:30 0.0		S 8	4:42 1.8	10:37 0.4	16:35 1.6	22:45 0.1
	M 9	4:02 1.6	9:41 0.2	16:00 2.0	22:20 0.1		Th 9	4:50 1.7	10:37 0.4	16:43 1.8	22:58 0.0		S 9	5:08 1.7	11:06 0.5	16:56 1.5	23:09 0.2
A	Tu 10	4:40 1.6	10:20 0.3	16:33 1.9	22:58 0.1	C	F 10	5:21 1.7	11:07 0.5	17:07 1.6	23:20 0.1	A	M 10	5:35 1.6	11:36 0.6	17:15 1.8	23:38 0.4
	W 11	5:17 1.6	10:57 0.4	17:07 1.8	23:27 0.1		S 11	5:54 1.6	11:40 -0.6	17:28 1.5	23:55 0.2		Tu 11	6:02 1.5	12:12 0.7	17:27 1.2	
	Th 12	5:57 1.5	11:30 0.6	17:39 1.6			S 12	6:31 1.5	12:18 0.7	17:51 1.3			W 12	6:04 0.5	12:49 1.3	17:40 0.9	17:43 1.0
N	F 13	0:03 0.2	6:43 1.4	12:18 0.7	18:11 1.4	A	M 13	0:27 0.4	7:18 1.4	13:07 0.9	18:14 1.2	N	Th 13	0:52 0.7	8:47 1.2	16:04 0.9	23:09 0.9
	S 14	0:42 0.3	7:38 1.4	13:12 0.9	18:42 1.2		Tu 14	1:07 0.5	8:32 1.3	14:37 1.0	18:55 1.0		F 14	3:28 0.8	11:27 1.3	18:50 0.7	
	S 15	1:26 0.4	8:50 1.4	14:40 1.0	19:39 1.1		W 15	2:12 0.6	10:36 1.4	19:00 0.9	23:28 1.0		S 15	0:37 1.1	5:58 0.7	12:30 1.5	19:10 0.5
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	Tu 17	3:42 0.6	11:36 1.5	19:04 0.8	23:53 1.0		F 17	0:48 1.0	6:00 0.6	12:58 1.7	19:43 0.5		M 17	1:42 1.5	7:33 0.3	13:45 1.8	19:57 0.2
	W 18	5:10 0.6	12:31 1.6	19:37 0.6			S 18	1:32 1.2	7:58 0.5	13:32 1.8	20:04 0.3	E	Tu 18	2:10 1.7	8:08 0.2	14:17 1.9	20:26 0.0
N	Th 19	0:57 1.1	6:17 0.5	13:13 1.8	20:00 0.4	M	S 19	2:04 1.4	7:41 0.4	14:05 1.9	20:26 0.2		W 19	2:38 1.9	8:38 0.1	14:50 1.9	20:50 -0.1
	F 20	1:43 1.2	7:07 0.4	13:48 1.9	20:24 0.3		M 20	2:35 1.5	8:17 0.3	14:35 2.0	20:50 0.1		Th 20	3:03 2.0	9:10 0.0	15:18 1.9	21:12 -0.1
	S 21	2:20 1.3	7:48 0.3	14:19 2.0	20:47 0.2	E	Tu 21	3:04 1.7	8:50 0.2	15:05 2.0	21:18 0.0	P	F 21	3:33 2.1	9:42 0.1	15:49 1.8	21:48 -0.1
D	S 22	2:51 1.4	8:22 0.3	14:48 2.0	21:12 0.1		W 22	3:32 1.8	9:23 0.1	15:36 2.0	21:49 -0.1		S 22	4:04 2.1	10:13 0.2	16:11 1.7	22:18 -0.1
	M 23	3:21 1.5	8:51 0.2	15:20 2.0	21:38 0.1		Th 23	3:59 1.9	9:57 0.1	16:07 1.9	22:15 -0.1		S 23	4:37 2.0	10:45 0.3	16:40 1.6	22:43 0.0
	Tu 24	3:52 1.6	9:28 0.2	15:48 2.0	22:06 0.0	D	F 24	4:30 1.9	10:30 0.2	16:33 1.8	22:42 0.0	S	M 24	5:11 1.9	11:20 0.5	17:08 1.4	23:17 0.2
E	W 25	4:19 1.7	10:06 0.2	16:18 1.9	22:36 0.0		S 25	5:04 1.9	11:04 0.3	17:00 1.7	23:13 0.0		Tu 25	5:52 1.7	12:00 0.6	17:37 1.2	23:57 0.4
	Th 26	4:50 1.7	10:42 0.3	16:50 1.8	23:10 0.0		S 26	5:42 1.8	11:43 0.5	17:27 1.5	23:48 0.1		W 26	6:43 1.5	12:57 0.8	18:13 1.0	
D	F 27	5:27 1.7	11:22 0.4	17:22 1.7	23:43 0.1	P	M 27	6:25 1.7	12:26 0.7	17:58 1.3		F	Th 27	6:59 0.6	8:34 1.3	15:01 0.9	21:55 1.0
	S 28	6:11 1.7	12:05 0.6	17:53 1.5			Tu 28	0:28 0.3	7:22 1.5	13:28 0.9	18:40 1.1		F 28	3:38 0.8	10:58 1.3	18:01 0.7	
	S 29	0:20 0.2	7:01 1.6	12:57 0.7	18:27 1.3		W 29	1:26 0.5	9:10 1.4	15:53 1.0	21:34 1.0		S 29	0:08 1.2	6:03 0.7	12:15 1.4	18:43 0.5
D	M 30	1:04 0.3	8:08 1.5	14:11 0.9	19:18 1.1	F	Th 30	3:17 0.4	11:15 1.5	18:40 0.7	23:00 1.0	S	S 30	0:54 1.4	6:59 0.5	12:58 1.6	19:13 0.3
	Tu 31	2:05 0.4	9:50 1.5	16:42 0.9	21:35 1.0		F 31	5:30 0.6	12:30 1.6	19:15 0.5							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 1.0 foot below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Colombo Mean Local Civil, for the meridian 79° 50' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



JANUARY.										FEBRUARY.										MARCH.													
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								
	W.	Mo.	Time				Height					W.	Mo.	Time				Height					W.	Mo.	Time				Height				
E D A	M	1	3:15	9:43	15:44	21:25	10:9	2.8	8.2	3.3	D A	Th	1	3:46	10:14	16:46	22:05	9.2	2.8	7.5	5.1	D	A	Th	1	2:33	8:35	15:14	20:38	10.0	1.8	9.0	3.9
	Tu	2	3:55	10:37	16:44	22:24	10.0	3.0	7.5	4.5		F	2	4:20	11:00	17:46	23:24	8.4	3.2	7.2	5.8		F	2	2:59	9:06	15:49	21:10	9.2	2.2	8.5	4.7	
	W	3	4:43	11:37	18:00	23:40	9.1	3.2	7.1	5.3		S	3	5:00	12:03	19:20		7.6	3.3	7.3			S	3	3:24	9:40	16:34	21:48	8.5	2.6	8.0	5.5	
	Th	4	5:34	12:39	19:28		8.3	3.2	7.3			S	4	1:20	6:16	13:12	20:45	5.9	7.2	3.1	7.9		S	4	3:54	10:34	17:43	23:20	7.8	3.0	7.7	5.9	
	F	5	1:09	6:40	13:35	20:45	5.8	7.3	3.0	7.9		M	5	2:48	7:58	14:12	21:37	5.9	6.9	2.5	9.0		N	M	5	4:55	11:55	19:23		7.1	3.2	7.9	
N	S	6	2:25	7:58	14:22	21:35	5.8	7.6	2.6	8.7	N	Tu	6	3:40	9:10	15:06	22:15	5.2	7.6	1.6	10.2	Tu	6	1:52	6:58	13:24	20:44	5.9	6.9	2.9	8.8		
	S	7	3:24	8:56	15:02	22:10	5.4	7.8	1.9	9.5	W	7	4:18	10:00	15:50	22:51	4.2	8.5	0.8	11.4	W	7	3:00	8:37	14:34	21:35	4.9	7.4	2.2	9.9			
	M	8	4:05	9:42	15:38	22:42	4.9	8.2	1.1	10.6	Th	8	4:54	10:45	16:34	23:24	4.54	10:45	16:34	23:24	Th	8	3:44	9:38	15:28	22:17	3.7	8.5	1.8	11.0			
	Tu	9	4:40	10:24	16:14	23:15	4.2	8.7	0.3	11.6	○	F	9	5:25	11:25	17:14		2.2	10.2	-0.6		F	9	4:20	10:25	16:15	22:55	2.5	9.8	0.4	11.9		
	W	10	5:14	11:00	16:50	23:47	3.5	9.2	-0.3	12.3	S	10	0:00	6:00	12:04	17:55	12.9	1.3	10.9	-0.8	S	10	4:56	11:08	17:00	23:32	1.2	10.9	-0.2	12.6			
N	Th	11	5:45	11:40	17:27		2.9	9.7	-0.7		S	11	0:35	6:33	12:45	18:35	0.35	6:33	12:45	18:35	○	S	11	5:30	11:48	17:41		0.2	11.8	-0.5			
	F	12	0:20	6:20	12:16	18:08	12.8	2.3	10.0	-0.8	M	12	1:10	7:08	13:25	19:14	13.1	0.2	11.4	0.0	E	M	12	0:10	6:07	12:30	18:24	12.9	-0.6	12.3	-0.5		
	S	13	0:55	6:53	12:55	18:43	13.0	1.9	10.2	-0.5	E	Tu	13	1:46	7:44	14:08	19:56	1.46	7:44	14:08	19:56	P	Tu	13	0:48	6:42	13:10	19:04	13.0	-1.0	12.6	0.0	
	S	14	1:30	7:28	13:37	19:23	12.8	1.5	10.1	0.1	P	W	14	2:25	8:28	14:55	20:43	2.25	8:28	14:55	20:43	W	14	1:24	7:20	13:54	19:46	12.5	-1.0	12.3	1.0		
	M	15	2:05	8:06	14:20	20:07	12.4	1.3	10.0	1.0	Th	15	3:04	9:14	15:46	21:37	3.04	9:14	15:46	21:37	Th	15	2:02	8:05	14:40	20:32	11.7	-0.5	11.6	2.1			
E	Tu	16	2:44	8:50	15:08	20:55	11.8	1.8	9.6	2.0	○	F	16	3:48	10:12	16:47	22:40	3:48	10:12	16:47	22:40	F	16	2:44	8:50	15:31	21:26	10.7	0.2	10.8	3.4		
	W	17	3:27	9:43	16:08	21:52	11.0	1.4	9.1	3.2	S	17	4:42	11:20	18:10		4.42	11:20	18:10		○	S	17	3:29	9:42	16:30	22:30	9.5	1.1	9.9	4.3		
	Th	18	4:14	10:41	17:10	23:10	10.1	1.7	8.7	4.2	S	18	0:25	5:56	12:39	19:47	0.25	5:56	12:39	19:47	S	S	18	4:25	10:52	17:45		8.5	1.9	9.3			
	F	19	5:10	11:51	18:35		9.2	1.7	8.8		S	M	19	2:00	7:34	14:00	21:06	2.00	7:34	14:00	21:06	M	19	0:07	5:45	12:20	19:19	4.7	7.7	2.4	9.2		
	P	S	20	0:42	6:24	13:04	20:08	4.7	8.7	1.4	9.5	Tu	20	3:16	9:00	15:07	22:00	3.16	9:00	15:07	22:00	Tu	20	1:52	7:28	13:47	20:40	4.4	7.7	2.4	9.8		
S	S	21	2:09	7:47	14:12	21:20	4.6	8.5	0.8	10.5	W	21	4:11	10:02	16:02	22:44	4.11	10:02	16:02	22:44	W	21	3:04	8:56	14:57	21:36	3.6	8.3	2.1	10.4			
	M	22	3:20	9:08	15:15	22:14	4.0	9.0	0.0	11.6	Th	22	4:56	10:52	16:48	23:25	4.56	10:52	16:48	23:25	Th	22	3:56	9:55	15:54	22:22	2.6	9.3	1.6	11.0			
	Tu	23	4:17	10:08	16:08	23:00	3.2	9.6	-0.6	12.4	●	F	23	5:35	11:35	17:29		5.35	11:35	17:29		F	23	4:35	10:40	16:37	23:00	1.8	10.1	1.3	11.2		
	W	24	5:05	10:57	16:55	23:40	2.4	10.1	-0.9	13.0	S	24	0:00	6:08	12:14	18:06	0.00	6:08	12:14	18:06	S	24	5:10	11:22	17:20	23:34	1.2	10.7	1.1	11.4			
	Th	25	5:48	11:43	17:39		1.8	10.5	-0.9		S	25	0:35	6:39	12:50	18:40	0.35	6:39	12:50	18:40	●	S	25	5:40	11:58	17:50		0.8	11.0	1.1			
E	F	26	0:20	6:28	12:25	18:18	13.3	1.4	10.7	-0.6	E	M	26	1:05	7:09	13:27	19:14	1.05	7:09	13:27	19:14	M	26	0:06	6:06	12:32	18:21	11.5	0.5	11.2	1.4		
	S	27	0:57	7:06	13:06	18:58	13.2	1.2	10.5	0.0	Tu	27	1:36	7:39	14:01	19:42	1.36	7:39	14:01	19:42	Tu	27	0:36	6:33	13:05	18:50	11.2	0.5	11.0	1.9			
	S	28	1:32	7:40	13:48	19:35	12.7	1.4	10.1	0.9	W	28	2:05	8:07	14:37	20:10	2.05	8:07	14:37	20:10	W	28	1:05	7:00	13:37	19:18	10.5	7.0	10.7	2.6			
	M	29	2:06	8:16	14:27	20:10	11.9	1.5	9.6	2.0											A	Th	29	1:32	7:25	14:08	19:43	10.2	0.9	10.4	3.2		
	Tu	30	2:40	8:54	15:10	20:46	11.1	1.9	8.9	3.0												F	30	1:57	7:52	14:40	20:12	9.6	1.2	9.9	3.9		
E	W	31	3:15	9:31	15:55	21:22	10.2	2.4	8.1	4.1											S	31	2:23	8:20	15:10	20:44	9.0	1.6	9.5	4.4			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 6.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Bombay Mean Local Civil, for the meridian 72° 50' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.						MAY.						JUNE.					
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
N	S 1	2:50 8.2	8:50 2.1	15:50 9.0	21:22 5.0	D	Tu 1	3:14 7.7	9:10 2.5	16:15 9.5	22:26 4.5	E	F 1	5:30 7.9	11:25 3.5	17:50 9.6	23:58 4.5
	M 2	3:25 7.7	9:40 2.7	16:48 8.6	22:40 5.3		W 2	4:20 7.3	10:21 3.1	17:20 9.2	23:52 4.1		S 2	0:25 2.3	6:44 8.5	12:49 3.6	18:58 9.6
	Tu 3	4:27 7.1	10:55 3.2	18:09 8.6	23:00 5.0		Th 3	5:55 7.4	11:59 3.4	18:38 9.2	23:00 4.1		S 3	1:25 1.5	8:02 9.5	14:00 3.2	20:05 9.9
	W 4	0:35 5.1	6:16 6.9	12:38 3.2	19:36 9.0		F 4	1:05 3.3	7:18 8.1	13:25 3.2	19:45 9.6		M 4	2:20 0.5	9:08 10.7	15:02 2.8	21:04 10.3
	Th 5	2:02 4.2	8:01 7.6	14:00 2.7	20:42 9.6		S 5	2:04 2.1	8:30 9.3	14:28 2.6	20:44 10.2		Tu 5	3:12 -0.6	10:03 11.9	15:56 2.4	21:58 10.7
E	F 6	2:57 3.0	9:09 8.8	15:02 1.9	21:34 10.5	P	S 6	3:00 1.0	9:30 10.7	15:27 1.8	21:39 10.9	C	W 6	4:00 -1.4	10:54 12.9	16:50 2.0	22:47 10.9
	S 7	3:40 1.6	9:56 10.2	15:54 1.2	22:17 11.4		M 7	3:43 -0.2	10:24 11.9	16:18 1.3	22:30 11.4		Th 7	4:48 -1.9	11:40 13.5	17:39 1.8	23:36 11.1
	S 8	4:20 0.3	10:44 11.5	16:40 0.3	23:00 12.1		Tu 8	4:27 -1.3	11:08 12.9	17:06 1.0	23:13 11.7		S 8	5:37 -2.0	12:26 13.8	18:28 1.8	24:00 11.8
	M 9	4:58 -0.7	11:27 12.6	17:24 0.0	23:40 12.5		W 9	5:09 -1.8	11:55 13.5	17:51 1.0	23:56 11.7		S 9	0:25 10.9	6:22 -1.7	13:12 13.6	19:18 1.8
	Tu 10	5:36 -1.3	12:10 13.2	18:06 0.2	24:00 12.0		Th 10	5:54 -2.0	12:40 13.7	18:40 1.3	24:00 11.8		S 10	1:12 10.4	7:09 -1.0	13:58 13.2	20:08 2.1
P	W 11	0:20 12.4	6:16 -1.6	12:55 13.3	18:50 0.6	S	F 11	0:40 11.4	6:38 -1.8	13:28 13.5	19:28 1.8	M	M 11	2:03 9.8	8:00 0.1	14:44 12.4	21:00 2.4
	Th 12	1:00 12.0	6:58 -1.5	13:40 13.0	19:37 1.4		S 12	1:26 10.7	7:24 -1.1	14:14 12.9	20:19 2.4		Tu 12	2:56 9.0	8:52 1.4	15:32 11.4	22:00 2.7
	F 13	1:42 11.2	7:42 -1.0	14:26 12.4	20:26 2.3		S 13	2:15 9.9	8:14 0.0	15:02 12.0	21:14 2.9		W 13	3:54 8.5	9:51 2.6	16:20 10.4	23:06 2.8
	S 14	2:26 10.2	8:30 0.0	15:17 11.5	21:19 3.3		M 14	3:08 8.9	9:10 1.3	15:55 11.1	22:22 3.8		Th 14	5:04 8.0	11:00 3.7	17:15 9.6	23:00 3.8
	S 15	3:16 9.1	9:27 1.2	16:12 10.6	22:28 3.9		Tu 15	4:11 8.1	10:18 2.5	16:50 10.2	23:38 3.4		E F 15	0:10 2.7	6:22 7.8	12:21 4.4	18:20 9.0
C	M 16	4:19 8.1	10:35 2.2	17:19 9.8	23:56 4.1	W	W 16	5:30 7.7	11:38 3.4	17:58 9.5	24:00 4.1	S	S 16	1:09 2.5	7:45 8.1	13:34 4.8	19:18 8.6
	Tu 17	5:40 7.5	12:00 3.0	18:40 9.4	24:00 4.1		Th 17	0:50 3.2	7:00 7.8	13:05 3.7	19:10 9.0		S 17	2:01 2.2	8:50 8.6	14:34 5.0	20:16 8.4
	W 18	1:20 3.7	7:23 7.6	13:26 3.2	20:00 9.4		F 18	1:54 2.7	8:18 8.4	14:14 3.9	20:14 9.0		M 18	2:44 2.0	9:40 9.2	15:26 4.8	21:10 8.4
	Th 19	2:29 3.1	8:43 8.4	14:43 2.9	21:02 9.6		E S 19	2:44 2.1	9:16 9.1	15:08 3.8	21:06 9.2		A Tu 19	3:21 1.6	10:20 9.8	16:09 4.6	21:52 8.5
	F 20	3:20 2.5	9:39 9.8	15:36 2.6	21:48 10.0		S 20	3:25 1.6	10:04 9.8	15:54 3.7	21:50 9.4		W 20	3:54 1.2	10:58 10.4	16:46 4.8	22:32 8.7
E	S 21	4:00 1.7	10:25 10.1	16:18 2.4	22:26 10.4	A	M 21	4:00 1.2	10:42 10.3	16:34 3.5	22:30 9.5	●	Th 21	4:24 0.7	11:25 11.0	17:20 4.0	23:07 8.8
	S 22	4:34 1.1	11:05 10.7	16:58 2.2	23:02 10.5		Tu 22	4:30 0.9	11:16 10.7	17:08 3.5	23:02 9.5		F 22	4:55 0.3	11:56 11.5	17:50 3.7	23:41 8.9
	● M 23	5:05 0.8	11:40 11.0	17:30 2.3	23:35 10.5		W 23	4:56 0.6	11:48 11.0	17:38 3.5	23:35 9.4		N S 23	5:27 0.0	12:28 11.9	18:24 3.4	24:00 8.9
	Tu 24	5:30 0.5	12:10 11.2	18:00 2.5	24:00 10.5		Th 24	5:24 0.3	12:20 11.3	18:08 3.4	24:00 9.4		S 24	0:17 9.0	6:00 0.0	13:00 12.0	18:58 3.2
	A W 25	0:05 10.3	5:57 10.4	12:41 11.2	18:28 2.8		F 25	0:05 9.3	5:50 0.1	12:49 11.5	18:40 3.5		M 25	0:53 9.0	6:36 0.2	13:35 12.0	19:30 3.0
N	Th 26	0:34 10.0	6:22 0.4	13:11 11.1	18:55 3.1	N	S 26	0:36 9.1	6:20 0.2	13:20 11.5	19:10 3.6	W	Tu 26	1:30 8.9	7:15 0.6	14:10 11.6	20:08 2.7
	F 27	1:01 9.5	6:49 0.5	13:41 11.0	19:25 3.5		S 27	1:08 8.8	6:53 0.5	13:54 11.4	19:42 3.6		W 27	2:15 8.8	7:58 1.3	14:50 11.2	20:58 2.5
	S 28	1:27 9.0	7:16 0.8	14:13 10.7	19:53 3.8		M 28	1:42 8.5	7:28 0.9	14:29 11.0	20:21 3.7		Th 28	3:02 8.6	8:45 2.1	15:30 10.8	21:44 2.4
	S 29	1:57 8.6	7:49 1.2	14:57 10.3	20:26 4.1		Tu 29	2:22 8.2	8:07 1.5	15:08 10.6	21:10 3.7		D F 29	4:00 8.5	9:44 2.9	16:15 10.2	22:43 2.1
	M 30	2:30 8.1	8:22 1.8	15:26 9.9	21:18 4.4		W 30	3:10 7.9	8:56 2.3	15:52 10.3	22:10 3.5		E S 30	5:05 8.5	10:57 3.7	17:12 9.7	23:46 1.5
						D	Th 31	4:14 7.8	10:00 3.0	16:43 9.9	23:20 3.1						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 6.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Bombay Mean Local Civil, for the meridian 72° 50' E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; D, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	S 1	6:26 8.7	12:33 4.0	18:29 9.4		P	W 1	1:41 0.9	8:46 10.2	14:46 4.1	20:28 8.9	S	1	8:35 0.6	10:17 11.7	16:25 2.1	22:25 10.2
	M 2	1:00 1.2	7:48 9.5	13:46 4.0	19:37 9.4	S	Th 2	2:43 0.2	9:44 11.2	15:45 3.4	21:32 9.5	S	2	4:22 0.2	10:58 12.2	17:06 1.3	23:10 10.8
	Tu 3	2:00 0.4	8:57 10.5	14:50 3.6	20:42 9.6		F 3	3:38 -0.4	10:32 12.1	16:35 2.6	22:27 10.1	○	M 3	5:04 0.0	11:34 12.4	17:38 0.8	23:50 11.2
P	W 4	2:55 -0.5	9:53 11.6	15:48 3.1	21:40 10.0	○	S 4	4:27 -0.8	11:15 12.8	17:19 1.9	23:17 10.6		Tu 4	5:42 0.1	12:09 12.3	18:10 0.6	
	Th 5	3:47 -1.1	10:43 12.6	16:40 2.5	22:35 10.4		S 5	5:12 -0.9	11:56 13.1	18:00 1.4		E	W 5	6:28 11.2	6:18 0.6	12:42 12.0	18:42 0.5
S	F 6	4:35 -1.6	11:28 13.2	17:30 2.1	23:25 10.6		M 6	6:01 10.8	5:55 -0.7	12:35 13.1	18:40 1.1		Th 6	1:05 11.0	6:52 1.1	13:14 11.5	19:12 0.7
○	S 7	5:23 -1.7	12:13 13.3	18:17 1.8			Tu 7	6:45 10.8	6:38 -0.1	13:13 12.6	19:17 1.2		F 7	1:42 10.6	7:23 2.1	13:45 10.7	19:43 1.2
	S 8	6:13 10.6	6:08 -1.2	12:50 13.4	19:03 1.7		W 8	1:28 10.4	7:16 0.9	13:49 11.9	19:55 1.3		S 8	2:20 9.8	7:53 3.1	14:15 9.8	20:13 1.8
	M 9	1:00 10.4	6:58 -0.5	13:39 13.0	19:48 1.8	E	Th 9	2:10 10.0	7:55 1.9	14:25 11.1	20:34 1.7		S 9	2:58 9.1	8:23 4.1	14:43 8.8	20:46 2.4
	Tu 10	1:48 9.9	7:38 0.5	14:20 12.2	20:35 2.0		F 10	2:56 9.2	8:33 3.0	15:00 10.1	21:12 2.2	A	M 10	3:38 8.5	8:57 5.0	15:13 8.0	21:20 3.0
	W 11	2:36 9.3	8:25 1.7	15:02 11.2	21:26 2.3		S 11	3:43 8.5	9:14 4.1	15:35 9.1	22:01 2.7	○	Tu 11	4:23 7.9	9:40 5.8	15:52 7.3	22:16 3.3
E	Th 12	3:30 8.7	9:15 3.0	15:43 10.3	22:21 2.5	○	S 12	4:37 7.8	10:05 5.1	16:14 8.2	22:51 3.2		W 12	5:31 7.7	11:20 6.0	17:00 6.7	23:40 3.6
○	F 13	4:28 8.1	10:12 4.1	16:30 9.4	23:19 2.7	A	M 13	5:37 7.4	11:26 5.9	16:59 7.5	23:52 3.3	N	Th 13	7:03 8.0	13:44 5.7	18:55 6.6	
	S 14	5:37 7.7	11:27 5.0	17:18 8.6			Tu 14	6:56 7.4	13:07 5.9	18:08 7.1			F 14	1:08 3.3	8:18 8.7	14:42 4.7	20:20 7.4
	S 15	0:16 2.8	6:58 7.6	12:44 5.6	18:14 8.0		W 15	0:56 3.1	8:15 8.0	14:22 5.8	19:35 7.0		S 15	2:17 2.6	9:10 9.7	15:20 3.7	21:17 8.4
A	M 16	1:09 2.7	8:09 8.1	13:54 5.7	19:17 7.8	N	Th 16	1:51 2.7	9:08 8.9	15:10 5.1	20:44 7.5		S 16	3:08 1.7	9:50 10.6	15:55 2.5	22:02 9.5
	Tu 17	1:53 2.5	9:03 8.6	14:48 5.5	20:18 7.6		F 17	2:45 2.0	9:47 9.9	15:48 4.3	21:35 8.2		M 17	3:52 0.9	10:28 11.4	16:30 1.3	22:42 10.6
	W 18	2:33 2.1	9:43 9.8	15:32 5.1	21:10 7.9		S 18	3:28 1.2	10:24 10.9	16:23 3.4	22:20 9.0	●	Tu 18	4:35 0.2	11:04 12.2	17:04 0.8	23:23 11.6
	Th 19	3:12 1.5	10:17 10.2	16:09 4.5	21:55 8.3		S 19	4:09 0.5	10:58 11.8	16:56 2.4	23:00 9.9	E	W 19	5:15 -0.1	11:42 12.6	17:39 -0.6	
N	F 20	3:50 0.8	10:50 11.0	16:45 3.9	22:36 8.8	●	M 20	4:50 -0.1	11:32 12.8	17:32 1.5	23:40 10.5		Th 20	6:03 12.2	5:56 -0.3	12:20 12.6	18:15 -1.0
●	S 21	4:26 0.2	11:23 11.7	17:20 3.3	23:15 9.2		Tu 21	5:30 -0.4	12:08 12.6	18:07 0.9			F 21	6:45 12.6	6:38 0.2	12:59 12.2	18:53 -0.9
	S 22	5:03 -0.2	11:58 12.2	17:55 2.7	23:55 9.6		W 22	6:21 11.0	6:10 -0.3	12:45 12.6	18:42 0.4	P	S 22	1:29 12.3	7:20 1.0	13:37 11.5	19:35 -0.6
	M 23	5:42 -0.3	12:33 12.5	18:33 2.2		E	Th 23	1:08 11.2	6:51 0.3	13:23 12.3	19:20 0.2		S 23	2:16 11.8	8:06 2.2	14:19 10.5	20:21 0.2
	Tu 24	6:35 9.8	6:21 -0.1	13:10 12.4	19:07 2.2		F 24	1:47 11.2	7:33 0.9	14:03 11.6	20:00 0.3	M	24	3:08 11.0	9:00 3.4	15:06 9.4	21:15 1.1
	W 25	1:17 9.9	7:03 0.4	13:47 12.1	19:46 1.5		S 25	2:34 10.8	8:19 2.0	14:43 10.8	20:49 0.8	D	Tu 25	4:05 10.1	10:05 4.8	16:05 8.4	22:25 1.9
	Th 26	2:02 9.9	7:47 1.1	14:26 11.6	20:30 1.4		S 26	3:26 10.2	9:13 3.2	15:28 9.8	21:43 1.3	S	W 26	5:20 9.5	11:48 4.7	17:26 7.7	23:57 2.5
E	F 27	2:50 9.6	8:35 2.0	15:10 10.9	21:20 1.5	D	M 27	4:26 9.5	10:20 4.3	16:22 8.9	22:52 1.7		Th 27	6:53 9.4	13:32 4.2	19:08 7.7	
	S 28	3:48 9.3	9:32 3.0	15:57 10.1	22:18 1.6		Tu 28	5:42 9.2	11:56 4.8	17:35 8.2			F 28	1:25 2.5	8:15 9.8	14:42 3.3	20:35 8.5
D	S 29	4:48 9.0	10:47 4.0	16:50 9.4	23:23 1.6	S	W 29	6:14 1.9	7:15 9.4	13:38 4.7	19:07 8.0		S 29	2:35 2.1	9:12 10.5	15:30 2.4	21:33 9.5
	M 30	6:03 8.9	12:13 4.5	17:56 8.8			Th 30	1:32 1.7	8:36 10.0	14:48 4.0	20:29 8.5		S 30	3:38 1.6	9:58 11.0	16:09 1.5	22:18 10.4
	Tu 31	6:34 1.4	7:32 9.4	13:37 4.5	19:14 8.7		F 31	2:39 1.1	9:32 10.9	15:42 3.0	21:34 9.3						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 6.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Bombay Mean Local Civil, for the meridian 72° 50' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



NOVEMBER.										DECEMBER.										
Time and Height of High and Low Water.										Time and Height of High and Low Water.										
										Day of—										
										W. Mo.										
M	1	4:14	10:34	16:42	22:58	○	Th	1	5:10	11:12	17:08	23:22	○	S	1	5:24	11:18	17:10		
		1.1	11.3	0.8	11.0				2.1	10.6	0.1	11.6				3.4	9.5	0.0		
Tu	2	4:54	11:06	17:11	23:35		F	2	5:39	11:42	17:35			S	2	5:08	5:52	12:17	17:35	
		0.9	11.7	0.3	11.5				2.3	10.4	0.0					11.6	3.8	9.3	0.0	
W	3	5:27	11:40	17:38			S	3	0:22	6:07	18:01		N	M	3	0:32	6:20	12:17	18:04	
		0.8	11.6	0.0					11.6	2.7	10.0	0.1				11.7	3.5	9.1	0.0	
Th	4	5:58	12:10	18:06		A	S	4	0:50	6:34	18:26		Tu	4	1:02	6:50	12:48	18:33		
		11.7	1.2	11.3	0.1				11.4	3.2	9.5	0.4				11.6	3.5	8.8	0.4	
F	5	6:28	12:40	18:34			M	5	1:21	7:01	18:56	18:54		W	5	1:32	7:20	13:20	19:08	
		11.4	1.8	10.8	0.4				11.1	3.6	9.0	0.3				11.4	3.2	8.6	0.8	
S	6	1:15	6:56	13:10	19:00	N	Tu	6	1:52	7:30	19:26	19:28		Th	6	2:05	7:54	13:58	19:43	
		11.0	2.6	10.1	0.3				10.7	4.0	8.4	1.3				11.1	3.6	8.2	1.3	
S	7	1:47	7:22	13:35	19:26		W	7	2:25		14:07	19:57		F	7	2:42	8:28	14:42	20:27	
		10.5	3.4	9.3	1.3				10.2	4.3	7.9	2.0				10.6	3.6	7.8	2.3	
M	8	2:20	7:50	14:02	19:56		Th	8	3:05	8:46	14:30			S	8	3:24	9:24	15:32	21:25	
		9.9	4.2	8.5	1.9				9.7	4.6	7.3	2.8				10.3	3.6	7.5	3.1	
Tu	9	2:55	8:20	14:30	20:27	C	F	9	3:51	10:00	15:00	15:00	C	S	9	4:12	10:44	16:59	22:45	
		9.3	4.7	7.9	2.6				9.2	4.5	6.8	3.5				9.7	3.5	7.5	3.9	
W	10	3:35	9:08	15:10	21:12		S	10	4:35	11:35	17:35	23:30		M	10	5:20	11:57	18:16		
		8.8	5.3	7.1	3.2				8.9	4.5	6.6	4.0				9.4	2.8	7.9		
Th	11	4:34	10:25	16:20	22:34		S	11	5:08	12:52	19:06		E	Tu	11	6:18	6:29	13:05	19:40	
		8.4	5.7	6.5	3.8				8.8	3.6	7.6					4.2	9.2	2.1	3.8	
F	12	5:52	12:34	18:16			M	12	1:05	7:22	13:49	20:15		W	12	1:46	7:40	14:00	20:50	
		8.3	5.3	6.5					3.8	9.2	2.5	8.9				3.8	9.4	1.0	10.1	
S	13	0:27	7:17	13:50	19:52	E	Tu	13	2:13	8:24	14:38	21:14		Th	13	2:44	8:48	14:55	21:46	
			8.6	4.3	7.3				3.1	9.9	1.3	10.3				3.3	9.8</			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 6.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign be before the height, in which case subtract it.

The time used is Bombay Mean Local (Civil), for the meridian  $73^{\circ} 50' E.$ , 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.), and when diminished by 12 give the times after noon; for instance 15.47 is 3.47 p. m.

●, new moon; ☾, 1st quar ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.







APRIL.										MAY.										JUNE.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
D	S	1	5:48 0.3	12:48 2.9	17:25 2.5	23:10 3.8					E	Tu	1	6:07 0.1	13:40 3.6	19:28 2.5					E	F	1	1:52 2.8	7:52 1.0	14:45 4.4	21:37 1.1					
	M	2	6:50 0.5	14:26 2.9	19:15 2.7					P		W	2	0:00 3.2	7:15 0.4	14:50 3.8	21:17 2.4	P	S	2		3:39 3.0	9:05 1.3	15:35 4.6	22:35 0.3							
	Tu	3	0:14 3.6	8:10 0.5	16:03 3.2	21:42 2.7	P	Th	3			2:01 2.9	8:35 0.6	15:48 4.1	22:19 1.7	S	S		3	5:00 3.3		10:13 1.6	16:25 4.9	23:25 -0.5								
	W	4	2:15 3.3	9:34 0.5	16:55 3.7	22:59 2.3		S	F			4	3:54 3.1	9:57 0.8	16:35 4.4		23:05 0.9		C	M		4	6:09 3.8	11:15 1.8	17:14 5.2							
	Th	5	4:10 3.4	10:42 0.3	17:35 4.2	23:45 1.6			S			S	5	5:12 3.6	11:02 0.8		17:17 4.7			23:51 0.1		C	Tu	5	0:15 -1.3	7:06 4.2	12:11 1.9	18:00 5.4				
F	6	5:25 3.8	11:36 0.1	18:10 4.7		C					S	6	6:10 4.1	11:55 0.9	18:00 5.1					E	W		6	1:00 -1.8	7:56 4.4	13:03 1.9	18:47 5.5					
S	7	0:25 0.8	6:23 4.3	12:30 0.0	18:44 4.9					C	M	7	0:35 -0.7	7:02 4.5	12:41 0.9		18:40 5.4	E			Th		7	1:45 -2.2	8:45 4.6	13:55 2.0	19:39 5.5					
S	8	1:00 0.1	7:10 4.7	13:15 0.0	19:25 5.3		C				Tu	8	1:19 -1.3	7:51 4.8	13:27 1.1	19:20 5.5	E				S		8	2:31 -2.2	9:32 4.7	14:45 2.1	20:17 5.2					
M	9	1:38 -0.5	7:55 4.9	13:55 0.0	19:58 5.4			C			W	9	2:03 -1.7	8:42 4.8	14:11 1.3	19:58 5.5			E		S		9	3:15 -2.1	10:20 4.7	15:39 2.2	21:02 4.9					
Tu	10	2:20 -1.0	8:40 4.9	14:35 0.4	20:32 5.5				C		Th	10	2:45 -1.9	9:32 4.8	14:58 1.6	20:38 5.4					E	S	10	4:00 -1.7	11:07 4.7	16:39 2.3	21:52 4.5					
W	11	3:03 -1.2	9:30 4.7	15:15 0.9	21:09 5.4	C					F	11	3:32 -1.9	10:25 4.6	15:47 1.9	21:20 5.1				E		M	11	4:56 -1.1	11:57 4.6	17:47 2.2	22:49 3.6					
Th	12	3:49 -1.3	10:23 4.4	15:58 1.4	21:48 5.2					C	S	12	4:18 -1.5	11:22 4.5	16:42 2.3	22:16 4.5		E				Tu	12	5:32 -0.4	12:47 4.5	19:06 2.1	23:39 3.0					
F	13	4:35 -1.1	11:22 4.0	16:45 1.9	22:27 4.8		C				S	13	5:08 -1.0	12:22 4.3	17:50 2.4	22:58 3.9	E					W	13	6:18 0.3	13:38 4.4	20:32 1.8						
S	14	5:29 -0.7	12:30 3.7	17:43 2.4	23:15 4.3			C			M	14	6:02 -0.4	13:29 4.1	19:23 2.4				E			Th	14	1:25 2.5	7:15 1.0	14:27 4.3	21:35 1.3					
S	15	6:31 -0.3	14:00 3.5	19:08 2.5					C		Tu	15	0:06 3.3	7:05 0.2	14:37 4.0	21:10 2.2					E	F	15	3:18 2.4	8:20 1.6	15:15 4.2	22:39 1.0					
M	16	0:18 3.7	7:45 0.1	15:40 3.7	21:21 2.6	C					W	16	1:50 2.7	8:13 0.8	15:38 4.1	22:33 1.7				E		S	16	5:00 2.5	9:23 2.0	15:54 4.2	23:31 0.7					
Tu	17	2:00 3.2	9:13 0.4	16:50 4.0	23:00 2.3					C	Th	17	3:50 2.7	9:25 1.2	16:23 4.2	23:25 1.1		E				S	17	6:10 2.8	10:20 2.4	16:25 4.2						
W	18	3:55 3.0	10:28 0.6	17:30 4.1	23:52 1.7		C				F	18	5:16 2.9	10:39 1.4	17:06 4.2		E					M	18	0:02 0.3	7:00 3.1	11:03 2.5	16:54 4.2					
Th	19	5:22 3.3	11:25 0.8	18:02 4.2				C			S	19	0:02 0.8	6:14 3.1	11:27 1.7	17:32 4.3			E			Tu	19	0:29 -0.2	7:37 3.2	11:50 2.6	17:25 4.5					
F	20	0:29 1.1	6:17 3.5	12:10 0.9	18:31 4.3				C		S	20	0:33 0.4	6:58 3.3	12:05 1.9	17:53 4.3					E	W	20	0:53 -0.5	8:07 3.6	12:25 2.7	18:00 4.4					
S	21	0:57 0.7	7:00 3.7	12:49 0.9	18:52 4.4	C					M	21	0:58 0.0	7:35 3.4	12:35 2.1	18:20 4.4				E		Th	21	1:15 -0.8	8:30 3.8	13:06 2.6	18:39 4.4					
S	22	1:20 0.4	7:35 3.9	13:15 1.1	19:15 4.5					C	Tu	22	1:20 -0.3	8:07 3.6	13:00 2.2	18:43 4.5		E				F	22	1:42 -1.0	8:52 4.0	13:44 2.5	19:01 4.6					
M	23	1:44 0.1	8:06 3.9	13:38 1.3	19:35 4.6		C				W	23	1:41 -0.6	8:35 3.7	13:28 2.2	19:05 4.6	E					S	23	2:10 -1.2	9:18 4.2	14:24 2.4	19:28 4.4					
Tu	24	2:06 -0.2	8:35 3.9	14:00 1.5	19:53 4.6			C			Th	24	2:05 -0.8	9:00 3.8	13:59 2.3	19:30 4.5			E			S	24	2:42 -1.3	9:50 4.3	15:07 2.4	20:17 4.4					
W	25	2:31 -0.3	9:02 3.8	14:25 1.7	20:13 4.6				C		F	25	2:30 -0.9	9:27 3.9	14:32 2.4	19:57 4.5					E	M	25	3:16 -1.2	10:25 4.5	15:56 2.4	21:00 4.2					
Th	26	2:55 -0.4	9:30 3.8	14:50 1.9	20:35 4.5	C					S	26	3:00 -1.0	10:01 4.0	15:10 2.4	20:28 4.4				E		Tu	26	3:55 -1.0	11:03 4.6	16:49 2.3	21:50 3.9					
F	27	3:22 -0.5	10:05 3.7	15:21 2.1	20:59 4.4					C	S	27	3:32 -1.0	10:42 4.0	15:55 2.5	21:03 4.3		E				W	27	4:36 -0.6	11:42 4.7	17:48 2.1	22:51 3.5					
S	28	3:54 -0.5	10:47 3.6	15:56 2.3	21:25 4.3		C				M	28	4:10 -0.8	11:26 4.1	16:50 2.5	21:45 3.9	E					Th	28	5:22 0.0	12:22 4.7	18:43 1.7						
S	29	4:30 -0.4	11:36 3.6	16:42 2.4	21:58 4.0			C			Tu	29	4:52 -0.5	12:12 4.1	18:00 2.4	22:45 3.5			E			F	29	0:06 3.1	6:12 0.7	13:06 4.6	19:31 1.2					
M	30	5:14 -0.2	12:33 3.5	17:45 2.5	22:45 3.6				C		W	30	5:42 -0.1	13:03 4.2	19:17 2.3						E	S	30	1:40 2.7	7:06 1.3	13:55 4.7	21:16 0.7					
						C					Th	31	0:04 3.1	6:41 0.4	13:55 4.3	20:30 1.8																

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Aden Mean Local Civil, for the meridian 49° 59' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.





JULY.										AUGUST.										SEPTEMBER.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Aden Mean Local Civil, for the meridian 44° 59' E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
P	M	1	0:45 0.1	7:06 4.6	13:20 0.7	19:17 4.2	○	Th	1	1:15 1.5	7:10 4.7	13:50 -0.4	20:22 3.9	○	S	1	1:10 2.3	6:51 4.6	13:54 -0.9	20:51 3.3									
	Tu	2	1:20 0.2	7:32 4.7	13:46 0.4	19:50 4.3		F	2	1:37 1.7	7:30 4.7	14:15 -0.5	20:50 3.8		S	2	1:40 2.4	7:13 4.6	14:17 -1.0	21:15 3.9									
	W	3	1:48 0.5	7:58 4.8	14:12 0.2	20:25 4.2		S	3	2:03 1.8	7:50 4.7	14:40 -0.6	21:20 3.7	N	M	3	2:10 2.4	7:38 4.5	14:45 -1.0	21:45 3.9									
	Th	4	2:12 0.7	8:20 4.8	14:42 0.0	21:00 4.0	A	S	4	2:30 2.0	8:12 4.6	15:06 -0.6	21:52 3.6		Tu	4	2:48 2.4	8:06 4.5	15:13 -1.0	22:30 4.0									
	F	5	2:37 1.0	8:40 4.7	15:12 -0.1	21:30 3.7		M	5	2:58 2.3	8:35 4.4	15:35 -0.5	22:22 3.5		W	5	3:20 2.4	8:38 4.2	15:50 -0.8	23:00 4.1									
A	S	6	3:00 1.4	9:02 4.6	15:40 0.0	22:04 3.4	N	Tu	6	3:32 2.4	9:00 4.2	16:06 -0.4	23:20 3.5		Th	6	4:20 2.4	9:15 4.0	16:23 -0.5	23:47 4.1									
	S	7	3:26 1.7	9:23 4.4	16:13 0.1	22:45 3.1		W	7	4:15 2.5	9:27 3.9	16:50 -0.1			F	7	5:28 2.4	10:10 3.6	17:10 -0.1										
	M	8	3:50 2.1	9:45 4.2	16:48 0.3	23:35 3.0		Th	8	0:18 3.5	5:30 2.7	10:12 3.5	17:40 0.2		S	8	0:35 4.2	6:45 2.4	11:20 3.2	18:05 0.4									
	Tu	9	4:20 2.4	10:06 3.9	17:32 0.4		○	F	9	1:28 3.5	7:30 2.7	11:17 3.2	18:46 0.5	○	S	9	1:26 4.2	8:04 2.0	13:12 2.8	19:14 1.0									
	W	10	0:50 2.9	5:10 2.7	10:35 3.6	18:30 0.6		S	10	2:35 3.7	9:18 2.4	13:35 2.8	20:10 0.8		M	10	2:18 4.3	9:18 1.4	15:12 2.7	20:30 1.4									
N	Th	11	2:42 3.0	7:30 2.9	11:40 3.3	19:53 0.7		S	11	3:28 4.0	10:10 1.8	15:36 2.9	21:33 1.0	E	Tu	11	3:10 4.5	10:17 0.5	16:42 3.0	21:45 1.7									
	F	12	4:00 3.3	9:52 2.7	14:05 3.0	21:12 0.7		M	12	4:10 4.2	10:50 1.0	16:52 3.4	22:36 1.1		W	12	4:00 4.8	11:10 -0.3	17:50 3.5	22:50 1.9									
	S	13	4:40 3.7	10:51 2.4	15:56 3.2	22:20 0.6	E	Tu	13	4:50 4.6	11:30 0.2	17:50 3.9	23:26 1.1		Th	13	4:50 5.1	11:53 -1.1	18:43 4.0	23:43 2.0									
	S	14	5:10 4.1	11:29 1.6	17:05 3.5	23:13 0.4		W	14	5:32 5.0	12:11 -0.6	18:40 4.3			F	14	5:35 5.4	12:38 -1.8	19:32 4.4										
	M	15	5:43 4.5	12:00 0.9	18:00 4.0			Th	15	0:14 1.2	6:10 5.3	12:52 -1.3	19:28 4.6	P	S	15	0:38 2.1	6:20 5.5	13:24 -2.2	20:18 4.6									
E	Tu	16	0:02 0.3	6:15 4.8	12:32 0.1	18:46 4.5	●	F	16	0:56 1.3	6:50 5.5	13:34 -1.8	20:15 4.8		S	16	1:26 2.1	7:05 5.6	14:05 -2.4	21:08 4.8									
	W	17	0:45 0.3	6:52 5.1	13:10 -0.5	19:29 4.8	P	S	17	1:40 1.5	7:28 5.6	14:16 -2.1	21:04 4.8	S	M	17	2:16 2.1	7:50 5.5	14:48 -2.3	21:50 4.9									
	Th	18	1:20 0.3	7:25 5.3	13:50 -1.1	20:15 4.9		S	18	2:26 1.7	8:06 5.5	15:00 -2.1	21:55 4.7		Tu	18	3:08 2.1	8:36 5.2	15:32 -2.0	22:35 4.9									
	F	19	2:03 0.6	8:00 5.5	14:32 -1.4	21:03 4.8	S	M	19	3:15 2.0	8:48 5.2	15:48 -1.8	22:50 4.6		W	19	4:04 2.1	9:25 4.6	16:18 -1.4	23:22 4.8									
	S	20	2:44 1.0	8:34 5.4	15:16 -1.5	21:54 4.5		Tu	20	4:10 2.3	9:35 4.7	16:36 -1.3	23:50 4.4		Th	20	5:08 2.1	10:18 4.0	17:03 -0.7										
S	S	21	3:26 1.5	9:12 5.2	16:02 -1.3	22:52 4.2		W	21	5:15 2.4	10:24 4.1	17:30 -0.8			F	21	0:14 4.7	6:26 2.1	11:20 3.3	17:50 0.0									
	M	22	4:15 2.0	9:53 4.9	16:56 -1.0			Th	22	0:55 4.2	6:48 2.4	11:30 3.4	18:33 0.0	○	S	22	1:06 4.6	7:56 1.9	12:50 2.7	18:48 0.8									
	Tu	23	0:02 4.0	5:14 2.4	10:40 4.4	17:58 -0.5	○	F	23	2:06 4.2	8:40 2.2	13:20 2.9	19:43 0.6	E	S	23	2:00 4.5	9:28 1.5	14:52 2.4	19:58 1.5									
	W	24	1:28 3.8	6:42 2.4	11:40 3.9	19:10 0.0		S	24	3:10 4.3	10:10 1.8	15:26 2.7	21:00 1.2		M	24	2:55 4.3	10:38 0.9	16:52 2.5	21:58 2.1									
	Th	25	3:04 3.8	8:50 2.6	13:27 3.2	20:37 0.3		S	25	4:00 4.3	11:10 1.1	17:00 2.8	22:15 1.5		Tu	25	3:42 4.2	11:25 0.6	18:10 2.8	22:16 2.4									
D	F	26	4:13 4.0	10:30 2.2	15:30 3.0	21:56 0.6	E	M	26	4:45 4.3	11:50 0.6	18:00 3.0	23:07 1.8		W	26	4:21 4.2	12:05 0.1	19:00 3.1	23:12 2.6									
	S	27	4:55 4.1	11:25 1.6	16:58 3.2	22:55 0.8		Tu	27	5:17 4.4	12:20 0.2	18:45 3.3	23:48 2.0		Th	27	4:55 4.2	12:30 -0.3	19:37 3.4	23:54 2.7									
	S	28	5:30 4.3	12:02 1.0	17:55 3.5	23:45 0.9		W	28	5:40 4.4	12:48 -0.2	19:25 3.5		A	F	28	5:22 4.3	12:52 -0.6	20:05 3.5										
	M	29	6:05 4.4	12:32 0.6	18:40 3.8			Th	29	0:20 2.2	6:03 4.5	13:10 -0.5	19:56 3.6		S	29	0:30 2.7	5:55 4.3	13:12 -0.8	20:27 3.7									
	Tu	30	0:20 1.1	6:25 4.5	13:00 0.2	19:17 3.9		F	30	0:46 2.3	6:30 4.6	13:30 -0.8	20:26 3.7	○	S	30	1:00 2.7	6:25 4.4	13:36 -1.0	20:50 3.9									
E	W	31	0:50 1.3	6:48 4.6	13:26 -0.2	19:50 3.9								N	M	31	1:30 2.6	6:53 4.5	14:00 -1.1	21:05 4.1									

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Aden Mean Local Civil, for the meridian 44° 59' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ○, 1st quar.; ○, full moon; ○, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



APRIL.					MAY.					JUNE.				
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			Moon.	Day of— W. Mo.	Time and Height of High and Low Water.		
•	S 1	5:38 3.6	11:54 1.1	18:02 3.5	•	Tu 1	5:57 3.5	12:14 1.2	18:40 3.4	•	F 1	2:00 1.3	8:06 3.3	14:24 1.3
•	M 2	0:04 1.3	6:17 3.4	12:40 1.4	•	W 2	0:54 1.4	7:00 3.2	13:21 1.5	•	E S 2	3:16 1.2	9:29 3.4	15:40 1.2
•	Tu 3	1:02 1.6	7:18 3.1	13:51 1.6	•	Th 3	2:22 1.6	8:34 3.1	14:58 1.5	•	S 3	4:28 0.9	10:41 3.6	16:50 1.0
•	W 4	2:42 1.8	9:02 2.9	15:34 1.7	•	F 4	3:58 1.4	10:14 3.2	16:25 1.3	•	M 4	5:26 0.6	11:41 3.9	17:46 0.7
•	Th 5	4:35 1.6	10:52 3.1	17:05 1.4	•	S 5	5:10 1.0	11:25 3.6	17:32 0.9	•	Tu 5	0:00 4.4	6:18 0.3	12:34 4.2
•	F 6	5:46 1.2	12:00 3.6	18:08 0.9	•	E S 6	6:02 0.6	12:17 4.1	18:22 0.5	•	P W 6	0:51 4.6	7:07 0.0	13:21 4.5
•	S 7	0:21 4.0	6:37 0.7	12:50 4.1	•	M 7	0:34 4.5	6:49 0.1	13:03 4.4	•	Th 7	1:40 4.8	7:53 -0.2	14:07 4.7
•	E S 8	1:08 4.5	7:20 0.2	13:31 4.5	•	P Tu 8	1:18 4.9	7:31 -0.2	13:45 4.7	•	S F 8	2:27 4.8	8:40 -0.2	14:54 4.8
•	○ M 9	1:50 4.9	8:01 2.9	14:11 4.8	•	W 9	2:02 5.0	8:14 -0.4	14:28 4.9	•	S 9	3:13 4.8	9:28 -0.2	15:40 4.7
•	P Tu 10	2:28 5.2	8:40 -0.4	14:50 5.0	•	Th 10	2:44 5.1	8:55 -0.4	15:08 4.9	•	S 10	4:00 4.6	10:12 0.0	16:25 4.6
•	W 11	3:05 5.2	9:18 -0.5	15:27 5.0	•	F 11	3:26 5.0	9:40 -0.3	15:50 4.8	•	M 11	4:48 4.3	11:00 0.3	17:17 4.4
•	Th 12	3:45 5.1	9:57 -0.4	16:07 4.8	•	S 12	4:10 4.7	10:23 0.0	16:36 4.6	•	Tu 12	5:40 4.0	11:53 0.6	18:14 4.1
•	F 13	4:26 4.8	10:39 -0.1	16:47 4.6	•	S 13	4:57 4.3	11:11 0.3	17:26 4.3	•	W 13	6:28 0.9	12:40 3.7	19:12 0.9
•	S 14	5:10 4.4	11:22 0.3	17:35 4.2	•	M 14	5:49 3.9	12:03 0.7	18:25 3.9	•	Th 14	1:32 1.1	7:46 3.4	13:56 1.2
•	• S 15	5:56 4.0	12:15 0.7	18:32 3.8	•	• Tu 15	0:40 1.1	6:51 3.6	13:06 1.1	•	E F 15	2:41 1.2	9:02 3.3	15:04 1.3
•	M 16	0:44 1.1	6:58 3.6	13:20 1.2	•	W 16	2:00 1.3	8:13 3.3	14:26 1.3	•	S 16	3:50 1.3	10:16 3.3	16:11 1.3
•	Tu 17	2:10 1.5	8:28 3.2	14:52 1.5	•	Th 17	3:30 1.4	9:48 3.2	15:52 1.3	•	S 17	4:51 1.2	11:18 3.3	17:10 1.3
•	W 18	3:59 1.5	10:15 3.2	16:32 1.4	•	F 18	4:48 1.2	11:08 3.4	17:05 1.1	•	A M 18	5:41 1.1	12:08 3.4	18:00 1.2
•	Th 19	5:24 1.3	11:40 3.5	17:43 1.1	•	E S 19	5:42 1.0	12:02 3.6	17:59 1.0	•	Tu 19	0:02 3.8	6:24 0.9	12:46 3.6
•	F 20	0:00 3.8	6:20 0.9	12:35 3.8	•	S 20	0:04 3.9	6:25 0.8	12:45 3.8	•	W 20	0:45 3.9	7:00 0.8	13:20 3.7
•	E S 21	0:44 4.1	7:00 0.6	13:15 4.1	•	M 21	0:44 4.1	7:00 0.6	13:18 3.9	•	Th 21	1:22 4.1	7:31 0.6	13:50 3.8
•	S 22	1:20 4.3	7:35 0.4	13:48 4.2	•	A Tu 22	1:20 4.2	7:32 0.5	13:50 4.0	•	• F 22	1:55 4.0	8:07 0.5	14:20 4.0
•	• M 23	1:54 4.5	8:06 0.2	14:17 4.3	•	• W 23	1:51 4.3	8:02 0.4	14:16 4.1	•	• S 23	2:25 4.1	8:20 0.5	14:51 4.1
•	Tu 24	2:24 4.6	8:36 0.2	14:44 4.3	•	Th 24	2:20 4.3	8:32 0.4	14:42 4.1	•	S 24	3:00 4.1	9:14 0.4	15:25 4.2
•	A W 25	2:50 4.5	9:02 0.2	15:08 4.3	•	F 25	2:47 4.2	9:00 0.4	15:10 4.1	•	M 25	3:34 4.0	9:50 0.4	16:00 4.3
•	Th 26	3:15 4.4	9:28 0.2	15:33 4.3	•	N S 26	3:15 4.1	9:30 0.4	15:40 4.1	•	Tu 26	4:11 4.0	10:25 0.5	16:42 4.2
•	F 27	3:40 4.3	9:53 0.4	16:00 4.1	•	S 27	3:45 4.0	10:00 0.6	16:12 4.1	•	W 27	4:55 3.9	11:08 0.6	17:26 4.2
•	S 28	4:08 4.1	10:22 0.6	16:29 4.0	•	M 28	4:20 3.9	10:37 0.7	16:52 4.0	•	Th 28	5:40 3.8	11:53 0.8	18:16 4.1
•	N S 29	4:40 3.9	10:52 0.8	17:02 3.9	•	Tu 29	5:02 3.7	11:16 0.9	17:37 3.8	•	• F 29	0:30 0.8	6:33 3.7	12:45 1.0
•	M 30	5:14 3.7	11:28 1.0	17:45 3.7	•	W 30	5:50 3.5	12:07 1.1	18:31 3.7	•	S 30	1:30 0.9	7:32 3.5	13:45 1.1
•					•	D Th 31	0:46 1.2	6:50 3.4	13:08 1.3	•				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Cape Town Mean Local Civil, for the meridian 18° 25' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon: for instance, 15:47 is 3:47 p.m.

•, new moon; •, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E	M	1	1:10 4.2	7:14 0.3	13:22 4.5	19:35 0.2	O	Th	1	1:56 4.4	7:56 0.3	14:04 4.6	20:15 0.1	A	S	1	2:04 4.1	8:04 0.7	14:08 4.3	20:19 0.3												
	Tu	2	1:46 4.5	7:50 0.1	14:00 4.8	20:12 0.0		F	2	2:24 4.4	8:26 0.3	14:30 4.6	20:42 0.1		S	2	2:31 4.1	8:30 0.7	14:35 4.2	20:47 0.4												
	W	3	2:19 4.6	8:22 0.0	14:31 4.8	20:43 -0.1		S	3	2:51 4.4	8:50 0.4	14:58 4.4	21:10 0.2		N	M	3	2:59 4.1	8:59 0.7	15:02 4.1	21:15 0.5											
	Th	4	2:49 4.6	8:50 0.0	15:00 4.8	21:10 0.0		A	S	4	3:18 4.2	9:19 0.6	15:24 4.2		21:37 0.4	Tu	4	3:27 4.1	9:28 0.8	15:30 4.0	21:47 0.6											
	F	5	3:17 4.5	9:18 0.2	15:28 4.6	21:40 0.2		M	5	3:45 4.1	9:45 0.7	15:50 4.0	22:05 0.6		W	5	3:57 4.1	10:00 0.9	16:08 3.8	22:20 0.7												
A	S	6	3:44 4.3	9:45 0.4	15:55 4.4	22:07 0.4	N	Tu	6	4:12 4.0	10:15 0.9	16:20 3.8	22:35 0.9	Th	6	4:24 4.0	10:25 1.0	16:40 3.6	22:56 0.9													
	S	7	4:11 4.1	10:14 0.7	16:22 4.1	22:36 0.6	W	7	4:46 3.8	10:46 1.1	16:55 3.5	23:11 1.1	F	7	5:17 3.8	11:23 1.1	17:25 3.5	23:43 1.1														
	M	8	4:40 3.9	10:42 1.0	16:52 3.8	23:05 0.9	Th	8	5:30 3.6	11:31 1.3	17:35 3.3	23:55 1.4	S	8	6:08 3.7	12:20 1.3	18:20 3.3	24:35 1.4														
	Tu	9	5:09 3.6	11:10 1.2	17:22 3.5	23:38 1.2	C	F	9	6:25 3.3	12:36 1.6	18:38 3.0	24:20 1.4	S	9	6:41 1.3	7:09 3.6	18:31 1.3	24:53 1.4													
	W	10	5:50 3.4	11:50 1.5	18:00 3.2	24:10 1.2	S	S	10	1:08 1.6	7:44 3.2	14:10 1.7	20:20 2.9	E	M	10	1:51 1.4	8:20 3.5	14:46 1.3	20:55 3.2												
N	Th	11	0:27 1.5	6:50 3.1	12:56 1.8	19:10 2.9	S	S	11	2:40 1.6	9:12 3.3	15:43 1.5	21:58 3.1	Tu	11	3:08 1.3	9:30 3.7	15:59 1.1	22:18 3.4													
	F	12	1:46 1.8	8:27 2.9	14:50 1.9	21:09 2.8	M	12	4:09 1.4	10:25 3.4	16:50 1.1	22:04 3.5	W	12	4:20 1.1	10:35 3.9	17:00 0.8	22:36 3.7														
	S	13	3:34 1.7	10:08 3.1	16:32 1.6	22:48 3.1	E	Tu	13	5:08 1.0	11:20 4.0	17:40 0.7	23:54 4.0	Th	13	5:22 0.9	11:38 4.2	17:55 0.4	24:18 4.0													
	S	14	4:55 1.4	11:14 3.5	17:34 1.2	23:47 3.5	W	14	5:57 0.6	12:08 4.4	18:24 0.2	24:50 4.0	F	14	6:10 4.1	12:15 0.6	18:45 4.5	25:15 0.1														
	M	15	5:52 0.9	12:02 4.0	18:18 0.7	24:50 0.2	Th	15	6:38 4.4	12:53 0.3	19:05 4.8	25:15 -0.1	P	S	15	6:59 4.4	7:06 0.4	18:16 4.7	25:35 -0.1													
E	Tu	16	0:30 4.0	6:33 0.5	12:45 4.5	18:57 0.2	●	F	16	1:20 4.7	7:25 0.0	13:35 5.0	19:47 -0.3	●	S	16	1:43 4.7	7:53 0.1	14:03 4.8	20:15 -0.5												
	W	17	1:07 4.5	7:12 0.1	13:22 4.8	19:35 -0.2	P	S	17	2:00 4.9	8:05 -0.1	14:16 5.0	20:29 -0.4	S	M	17	2:30 4.8	8:40 0.1	14:48 4.8	21:02 -0.3												
	Th	18	1:43 4.8	7:30 -0.2	14:00 5.1	20:12 -0.4	S	S	18	2:40 4.9	8:48 -0.1	14:58 4.9	21:12 -0.3	Tu	18	3:15 4.8	9:27 0.1	15:35 4.7	21:47 -0.1													
	F	19	2:20 5.0	8:25 -0.2	14:37 5.2	20:50 -0.5	S	M	19	3:23 4.8	9:33 0.1	15:42 4.7	21:56 -0.1	W	19	4:00 4.7	10:13 0.3	16:22 4.4	22:35 0.1													
	S	20	3:00 5.0	9:05 -0.2	15:16 5.1	21:28 -0.4	Tu	Tu	20	4:08 4.6	10:18 0.3	16:30 4.4	22:44 0.2	Th	20	4:50 4.6	11:08 0.5	17:13 4.1	23:25 0.1													
S	S	21	3:38 4.8	9:46 0.0	15:56 4.8	22:10 -0.1	W	W	21	4:59 4.4	11:09 0.7	17:20 4.0	23:34 0.6	F	21	5:43 4.3	11:58 0.8	18:10 3.8	24:15 0.6													
	M	22	4:19 4.6	10:29 0.3	16:40 4.4	22:55 0.3	Th	Th	22	5:57 4.0	12:11 1.0	18:23 3.6	24:12 0.6	D	S	22	6:21 0.7	6:41 4.0	18:00 1.0	24:45 3.5												
	Tu	23	5:06 4.2	11:14 0.7	17:26 4.0	23:46 0.7	D	F	23	6:38 1.0	7:07 3.7	18:30 1.3	19:43 3.3	E	S	23	1:25 1.0	7:43 3.8	14:09 1.2	20:26 3.3												
	W	24	6:05 3.8	12:17 1.1	18:30 3.6	24:50 0.7	S	S	24	1:57 1.2	8:27 3.6	15:00 1.3	21:20 3.8	M	24	2:34 1.2	8:50 3.6	15:23 1.3	21:47 3.3													
	Th	25	0:54 1.1	7:20 3.5	13:42 1.4	20:00 3.2	S	S	25	3:24 1.3	9:48 3.6	16:22 1.2	22:40 3.4	Tu	25	3:47 1.3	10:00 3.6	16:33 1.3	22:00 3.3													
E	F	26	2:25 1.4	8:58 3.4	15:33 1.5	21:50 3.2	E	M	26	4:40 1.1	10:52 3.8	17:20 1.0	23:40 3.7	W	26	4:55 1.3	11:00 3.6	17:30 1.1	23:51 3.4													
	S	27	4:03 1.3	10:30 3.6	16:56 1.2	23:14 3.5	Tu	Tu	27	5:36 0.9	11:43 4.0	18:06 0.7	24:12 3.7	Th	27	5:51 1.2	11:53 3.7	18:15 0.9	24:35 3.5													
	S	28	5:15 1.0	11:32 3.8	17:53 0.8	24:50 0.7	W	W	28	6:25 3.8	12:22 0.8	19:05 4.1	25:15 0.6	A	F	28	6:40 3.6	12:38 1.1	19:25 3.9	25:35 0.8												
	M	29	0:07 3.9	6:10 0.7	12:20 4.2	18:35 0.5	Th	Th	29	1:01 4.0	7:00 0.7	13:04 4.3	19:17 0.4	S	29	1:17 3.7	7:17 1.0	13:16 4.0	19:25 0.6													
	Tu	30	0:50 4.2	6:50 0.4	12:57 4.4	19:11 0.3	F	F	30	1:35 4.1	7:34 0.7	13:38 4.3	19:49 0.3	O	S	30	1:47 3.9	7:50 0.9	13:51 4.0	20:01 0.6												
	W	31	1:24 4.4	7:25 0.3	13:33 4.6	19:45 0.1								N	M	31	2:15 4.0	8:18 0.8	14:20 4.1	20:32 0.1												

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 2.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Cape Town Mean Local Civil, for the meridian 18° 25' E.; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



APRIL.				MAY.				JUNE.			
Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.
	W.	Mo.			W.	Mo.			W.	Mo.	
N	S	1	6:06 12:02 18:22 8.8 3.0 8.7	☾	Tu	1	0:20 6:38 12:40 19:08 2.6 8.7 3.2 8.8		F	1	2:22 8:40 14:54 21:09 2.4 9.0 2.9 9.3
☾	M	2	0:43 6:55 13:09 19:25 3.2 8.3 3.7 8.3		W	2	1:34 7:49 14:02 20:23 1.8 8.4 3.6 8.6	E	S	2	3:36 10:00 16:05 22:26 2.1 9.3 2.3 9.8
	Tu	3	2:05 8:15 14:41 21:00 3.6 7.9 4.0 8.1		Th	3	2:58 9:20 15:36 21:51 3.0 8.5 3.2 9.0		S	3	4:40 11:08 17:07 23:35 1.5 10.0 1.5 10.5
	W	4	3:40 10:10 16:10 22:40 3.5 8.1 3.5 8.7		F	4	4:15 10:44 16:40 23:07 2.3 9.2 2.3 9.8		M	4	5:34 12:08 18:00 0.8 10.8 0.5
	Th	5	4:50 11:30 17:14 23:50 2.6 9.0 2.4 9.9		S	5	5:12 11:46 17:35 1.8 10.2 1.2		Tu	5	6:35 13:01 19:50 11.2 0.1 11.7 -0.2
	F	6	5:44 12:25 18:05 1.4 10.2 1.3	E	S	6	0:08 6:03 12:39 18:24 10.9 0.3 11.2 0.2	☾	W	6	1:29 7:11 13:50 19:37 11.9 -0.4 12.3 -0.8
	S	7	0:43 6:32 13:10 18:50 11.1 0.2 11.3 0.1		M	7	1:00 6:49 13:25 19:10 11.8 -0.5 12.1 -0.7		Th	7	2:18 7:58 14:38 20:24 12.2 -0.6 12.7 -0.9
E	S	8	1:28 7:15 13:50 19:35 12.1 -0.7 12.2 -0.8	☾	Tu	8	1:46 7:32 14:08 19:55 12.5 -1.0 12.6 -1.2	S	F	8	3:05 8:42 15:24 21:12 12.8 -0.5 12.7 -0.8
☾	M	9	2:10 7:56 14:31 20:13 12.8 -1.3 12.7 -1.4		W	9	2:32 8:16 14:54 20:40 12.8 -1.1 12.8 -1.3		S	9	3:52 9:30 16:10 22:00 12.0 -0.1 12.4 -0.3
P	Tu	10	2:52 8:38 15:12 20:55 13.1 -1.5 12.8 -1.5		Th	10	3:17 9:00 15:35 21:25 12.7 -0.8 12.7 -1.1		S	10	4:40 10:15 16:58 22:48 11.5 0.6 11.8 0.4
	W	11	3:34 9:19 15:52 21:38 13.0 -1.3 12.7 -1.2		F	11	4:03 9:44 16:24 22:12 12.3 -0.4 12.3 -0.5		M	11	5:32 11:08 17:49 23:44 10.8 1.4 11.1 1.3
	Th	12	4:17 10:01 16:35 22:24 12.5 -0.7 12.1 -0.6	S	S	12	4:52 10:30 17:10 23:00 11.5 0.5 11.5 0.4		Tu	12	6:26 12:01 18:44 10.0 2.3 10.3
	F	13	5:03 10:45 17:22 23:13 11.7 0.3 11.3 0.4		S	13	5:44 11:22 18:03 10.7 1.5 10.7	☾	W	13	0:47 7:24 13:08 19:42 2.2 9.4 3.0 9.6
S	S	14	5:55 11:38 18:15 10.7 1.5 10.4		M	14	0:02 6:44 12:25 19:05 1.5 9.8 2.6 9.8		Th	14	1:56 8:28 14:24 20:50 2.8 8.8 3.4 9.0
☾	S	15	0:12 6:58 12:42 19:19 1.6 9.7 2.6 9.5	☾	Tu	15	1:14 7:54 13:45 20:16 2.5 9.0 3.3 9.2	E	F	15	3:08 9:40 15:40 22:03 3.2 8.6 3.5 8.8
	M	16	1:30 8:10 14:09 20:42 2.7 8.8 3.5 8.9		W	16	2:38 9:15 15:14 21:38 3.0 8.7 3.5 9.1		S	16	4:15 10:47 16:45 23:10 3.2 8.7 3.4 8.9
	Tu	17	3:06 9:48 15:50 22:14 3.2 8.5 3.6 9.0		Th	17	3:58 10:34 16:34 22:54 3.0 8.8 3.2 9.3		S	17	5:06 11:44 17:30 3.1 9.0 3.2
	W	18	4:30 11:14 17:05 23:30 3.0 8.9 3.0 9.6	E	F	18	5:04 11:38 17:26 23:52 2.7 9.3 2.9 9.7	A	M	18	0:06 5:47 12:30 18:09 9.1 2.9 9.4 2.8
	Th	19	5:38 12:12 17:58 2.4 9.7 2.5		S	19	5:50 12:25 18:08 2.4 9.8 2.5		Tu	19	0:52 6:20 13:08 18:40 9.4 2.6 9.8 2.4
	F	20	0:25 6:22 12:58 18:40 10.4 2.0 10.4 2.0		S	20	0:41 6:25 13:05 18:41 10.1 2.2 10.2 2.2		W	20	1:29 6:50 13:40 19:10 9.6 2.2 10.1 2.0
E	S	21	1:10 6:58 13:35 19:11 10.9 1.6 10.9 1.5		M	21	1:22 6:55 13:38 19:10 10.4 1.9 10.5 1.9	☾	Th	21	2:00 7:20 14:09 19:40 9.8 1.8 10.3 1.5
	S	22	1:49 7:28 14:06 19:40 11.3 1.3 11.1 1.2	A	Tu	22	1:55 7:20 14:06 19:37 10.4 1.7 10.6 1.6	N	F	22	2:30 7:49 14:38 20:03 9.9 1.4 10.5 1.0
●	M	23	2:20 7:52 14:36 20:05 11.3 1.1 11.1 1.0	●	W	23	2:25 7:45 14:34 20:04 10.4 1.4 10.6 1.2		S	23	2:56 8:22 15:10 20:50 10.0 1.1 10.7 0.7
	Tu	24	2:50 8:16 15:00 20:30 11.0 1.0 10.9 0.9		Th	24	2:50 8:10 14:58 20:32 10.2 1.2 10.5 1.0		S	24	3:27 8:57 15:40 21:26 10.1 0.9 10.7 0.5
A	W	25	3:15 8:40 15:23 20:56 10.7 0.9 10.6 0.8		F	25	3:15 8:40 15:24 21:05 10.0 1.1 10.4 0.8		M	25	4:00 9:35 16:17 22:10 10.1 0.9 10.6 0.5
	Th	26	3:38 9:08 15:47 21:26 10.3 0.9 10.4 0.8	N	S	26	3:40 9:15 15:54 21:42 9.9 1.1 10.3 0.8		Tu	26	4:40 10:20 16:55 22:55 10.1 1.1 10.5 0.8
	F	27	4:00 9:36 16:10 22:00 10.0 1.1 10.1 1.0		S	27	4:12 9:50 16:25 22:21 9.8 1.2 10.1 1.0		W	27	5:22 11:06 17:40 23:46 10.0 1.4 10.3 1.2
	S	28	4:28 10:10 16:40 22:39 9.7 1.4 9.8 1.4		M	28	4:50 10:32 17:05 23:08 9.7 1.6 9.9 1.4		Th	28	6:10 12:00 18:30 9.8 1.9 10.1
N	S	29	5:00 10:50 17:18 23:24 9.4 1.9 9.5 2.0		Tu	29	5:34 11:20 17:52 9.4 2.1 9.6	☾	F	29	0:45 7:03 13:04 19:23 1.6 9.6 2.3 9.8
	M	30	5:41 11:38 18:02 9.1 2.6 9.1		W	30	0:04 6:25 12:20 18:48 1.9 9.2 2.6 9.4	E	S	30	1:48 8:05 14:17 20:25 2.0 9.4 2.6 9.5
				☾	Th	31	1:08 7:26 13:35 19:54 2.8 9.0 3.0 9.2				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 6.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it. In order to refer the above heights to the plane used upon the Portuguese Charts of Lisbon Harbor, add 1.4 feet to each. A foot is about three-tenths of a meter.

The time used is Portuguese Standard, for the meridian 9° 05' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.							
Moon.	Day of— W. Mo	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
	S 1	3:05 2.2	9:30 9.4	15:41 2.3	22:08 9.7	P W 1	5:08 2.1	11:35 10.1	17:34 1.5		S 1	1:05 10.8	6:48 1.3	13:19 11.7	19:09 0.7		
	M 2	4:18 1.8	10:43 9.9	16:46 1.7	23:15 10.2	S Th 2	0:15 10.3	5:58 1.5	12:35 11.0	18:28 0.8	C S 2	1:49 11.4	7:24 0.8	14:02 12.2	19:48 0.3		
	Tu 3	5:15 1.3	11:48 10.6	17:44 0.9		F 3	1:10 11.0	6:48 0.9	13:27 11.9	19:18 0.3	M 3	2:28 11.8	8:00 0.4	14:41 12.4	20:24 0.1		
P	W 4	0:20 10.8	6:08 0.7	12:45 11.4	18:35 0.2	O S 4	2:00 11.6	7:32 0.5	14:13 12.3	20:00 0.0	Tu 4	3:04 11.8	8:34 0.2	15:12 12.2	20:57 0.2		
S	Th 5	1:15 11.4	6:57 0.2	13:35 12.1	19:24 -0.3	S 5	2:42 12.8	8:14 0.2	14:56 12.5	20:43 -0.1	E W 5	3:37 11.5	9:07 0.4	15:52 11.8	21:28 0.5		
O	F 6	2:05 11.8	7:41 -0.1	14:23 12.5	20:10 -0.4	M 6	3:25 11.7	8:55 0.3	15:38 12.3	21:22 0.1	Th 6	4:08 11.0	9:38 0.7	16:23 11.0	21:58 0.9		
	S 7	2:54 11:9	8:27 0.0	15:10 12.6	20:58 -0.3	Tu 7	4:05 11.4	9:35 0.5	16:18 11.9	22:00 0.5	F 7	4:37 10.3	10:10 1.2	16:54 10.2	22:29 1.5		
	S 8	3:40 11.7	9:10 0.2	15:55 12.3	21:40 0.0	E W 8	4:41 10.9	10:13 1.0	16:57 11.2	22:38 1.1	S 8	5:07 9.6	10:53 1.8	17:25 9.4	23:03 2.2		
	M 9	4:25 11.3	9:55 0.7	16:40 11.8	22:28 0.7	Th 9	5:20 10.2	10:50 1.6	17:35 10.3	23:15 1.8	S 9	5:37 9.0	11:22 2.6	17:56 8.7	23:42 3.0		
	Tu 10	5:10 10.7	10:40 1.4	17:27 11.1	23:14 1.4	F 10	5:56 9.5	11:30 2.4	18:15 9.4	23:58 2.7	A M 10	6:12 8.4	12:08 3.3	18:36 8.1			
	W 11	6:00 10.0	11:28 2.1	18:15 10.3		S 11	6:38 8.8	12:16 3.1	18:58 8.6		Tu 11	0:31 3.7	6:57 8.0	13:12 4.0	19:33 7.6		
E	Th 12	0:05 2.2	6:46 9.3	12:22 2.9	19:05 9.5	S S 12	0:47 3.4	7:21 8.2	13:12 3.8	19:48 8.0	N W 12	1:45 4.3	8:10 7.6	14:43 4.2	21:12 7.4		
C	F 13	1:04 2.9	7:38 8.7	13:24 3.5	20:00 8.7	A M 13	1:50 4.0	8:20 7.8	14:28 4.2	21:00 7.5	Th 13	3:23 4.3	9:52 7.8	16:11 3.8	22:48 7.9		
	S 14	2:07 3.5	8:37 8.3	14:35 3.9	21:05 8.2	Tu 14	3:05 4.3	9:39 7.7	15:50 4.1	22:24 7.6	F 14	4:35 3.7	11:12 8.6	17:07 2.9	23:50 8.8		
	S 15	3:14 3.7	9:46 8.1	15:50 3.9	22:17 8.1	W 15	4:16 4.0	10:54 8.2	16:50 3.6	23:32 8.2	S 15	5:27 2.7	12:05 9.7	17:54 1.8			
A	M 16	4:20 3.7	10:51 8.3	16:47 3.7	23:22 8.3	N Th 16	5:08 3.4	11:53 8.9	17:37 2.8		S 16	0:35 9.9	6:11 1.6	12:50 10.8	18:36 0.7		
	Tu 17	5:00 3.4	11:45 8.8	17:30 3.2		F 17	0:22 8.9	5:51 2.6	12:37 9.8	18:20 1.9	M 17	1:15 10.9	6:52 0.5	13:28 11.7	19:15 -0.3		
	W 18	0:12 8.7	5:40 3.0	12:28 9.3	18:06 2.6	S 18	1:04 9.7	6:32 1.7	13:15 10.6	18:56 1.0	● Tu 18	1:52 11.7	7:30 -0.4	14:06 12.4	19:53 -1.0		
	Th 19	0:52 9.2	6:15 2.4	13:05 9.9	18:40 1.9	S 19	1:40 10.5	7:10 0.9	13:54 11.3	19:35 0.2	E W 19	2:27 12.2	8:08 -1.0	14:44 12.7	20:32 -1.4		
N	F 20	1:26 9.7	6:50 1.8	13:37 10.5	19:16 1.2	● M 20	2:14 11.0	7:48 0.1	14:29 11.8	20:12 -0.5	Th 20	3:06 12.4	8:48 -1.3	15:23 12.7	21:11 -1.3		
●	S 21	2:00 10.1	7:26 1.1	14:12 10.8	19:54 0.7	Tu 21	2:50 11.4	8:25 -0.3	15:07 12.1	20:52 -0.8	P F 21	3:43 12.2	9:29 -1.1	16:04 12.3	21:53 -0.8		
	S 22	2:33 10.4	8:02 0.7	14:46 11.1	20:30 0.2	W 22	3:26 11.6	9:07 -0.5	15:45 12.2	21:35 -0.8	S 22	4:24 11.8	10:12 -0.5	16:48 11.6	22:38 0.1		
	M 23	3:10 10.7	8:40 0.3	15:22 11.3	21:09 -0.1	E Th 23	4:04 11.6	9:48 -0.4	16:24 11.9	22:15 -0.4	S 23	5:08 11.0	11:00 0.4	17:37 10.7	23:27 1.2		
	Tu 24	3:44 10.8	9:21 0.2	16:09 11.3	21:53 -0.1	F 24	4:45 11.2	10:31 0.0	17:07 11.4	23:00 0.3	M 24	6:06 10.2	11:56 1.5	18:36 9.8			
	W 25	4:24 10.8	10:06 0.4	16:42 11.2	22:36 0.2	S 25	5:28 10.7	11:20 0.8	17:54 10.6	23:52 1.2	● Tu 25	0:27 2.4	7:02 9.3	13:10 2.6	19:50 8.9		
	Th 26	5:05 10.6	10:50 0.8	17:26 10.9	23:25 0.7	S 26	6:18 10.1	12:12 1.7	18:49 9.8		W 26	1:51 3.4	8:25 8.8	14:46 3.2	21:27 8.5		
E	F 27	5:50 10.3	11:42 1.4	18:15 10.4		● P M 27	0:52 2.2	7:19 9.4	13:28 2.5	20:01 9.1	Th 27	3:35 3.5	10:02 9.0	16:18 2.9	23:00 9.0		
●	S 28	0:20 1.4	6:44 9.9	12:42 2.0	19:11 9.9	Tu 28	2:12 3.0	8:38 8.9	14:56 2.9	21:31 8.8	F 28	4:58 2.9	11:22 9.8	17:29 2.2			
	S 29	1:24 2.1	7:45 9.4	13:55 2.5	20:20 9.4	S W 29	3:43 3.1	10:10 9.1	16:25 2.6	23:04 9.1	S 29	0:07 9.9	5:52 2.2	12:20 10.7	18:18 1.5		
	M 30	2:39 2.5	9:00 9.2	15:15 2.6	21:42 9.2	Th 30	5:00 2.6	11:30 9.9	17:33 1.9		S 30	0:58 10.7	6:35 1.5	13:05 11.5	18:58 0.9		
	Tu 31	3:56 2.5	10:23 9.4	16:32 2.2	23:05 9.6	F 31	0:12 10.0	5:56 2.0	12:30 10.8	18:26 1.3							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 6.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it. In order to refer the above heights to the plane used upon the Portuguese Charts of Lisbon Harbor, add 1.4 feet to each. A foot is about three-tenths of a meter.

The time used is Portuguese Standard, for the meridian 9° 05' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ●, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.				
MOON.	Day of—	Time and Height of High and Low Water.			MOON.	Day of—	Time and Height of High and Low Water.			MOON.	Day of—	Time and Height of High and Low Water.		
W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.	W. Mo.
M 1	1.30	7:09	18:44	19:30	Th 1	2:14	7:48	14:31	20:00	A S 1	2:21	7:52	14:40	19:36
Tu 2	11.6	0.9	12.2	0.6	F 2	11.5	0.8	11.4	0.9	S 2	10.9	1.3	10.5	1.3
W 3	2:06	7:42	14:20	20:00	S 3	2:48	8:14	14:56	20:00	M 3	2:43	8:19	15:04	20:25
Th 4	11.9	0.5	12.3	0.4	S 4	11.3	0.8	11.0	0.9	Tu 4	10.8	1.2	10.1	1.2
F 5	2:38	8:12	14:58	20:28	M 5	3:08	8:39	15:24	20:00	W 5	3:13	8:48	15:29	20:54
S 6	11.9	0.4	12.1	0.4	Tu 6	10.9	0.8	10.4	1.0	Th 6	10.5	0.9	9.9	1.2
S 7	3:08	8:39	15:23	20:55	W 7	3:32	9:06	15:43	21:16	S 8	3:30	9:00	15:55	21:23
M 8	11.6	0.4	11.5	0.6	Th 8	10.5	0.9	9.9	1.2	Tu 9	10.3	0.9	9.7	1.3
Tu 9	3:36	9:07	15:51	21:21	M 9	3:57	9:39	16:12	21:47	W 10	4:06	9:56	16:26	22:05
W 10	11.1	0.7	10.8	0.9	Tu 10	10.1	1.2	9.5	1.6	Th 11	10.1	1.1	9.5	1.7
Th 11	4:02	9:36	16:18	21:46	W 11	4:24	10:15	16:43	22:23	S 12	4:44	10:41	17:06	22:50
F 12	10.5	1.0	10.1	1.4	Th 12	9.6	1.6	9.1	2.2	Tu 13	5:26	11:23	17:55	23:45
S 13	4:27	10:07	16:44	22:20	M 13	4:56	10:59	17:23	23:10	W 14	5:26	11:23	17:55	23:45
M 14	9.9	1.5	9.4	2.0	Tu 14	9.2	2.2	8.7	2.9	Th 15	5:26	11:23	17:55	23:45
Tu 15	4:58	10:43	17:13	22:55	W 15	5:42	11:54	18:15	...	S 16	6:17	12:25	18:55	...
W 16	9.3	2.1	8.8	2.7	Th 16	6.3	2.9	8.3	...	Tu 17	6:17	12:25	18:55	...
Th 17	5:26	11:27	17:50	23:42	M 17	6:10	6:41	13:07	19:30	W 18	6:17	12:25	18:55	...
F 18	8.8	2.9	8.3	3.4	Tu 18	3.5	8.4	3.4	8.0	Th 19	6:17	12:25	18:55	...
S 19	6:09	12:25	18:45	...	W 19	1:37	8:03	14:35	21:34	S 20	6:17	12:25	18:55	...
Th 20	8.3	3.6	7.8	...	Th 20	3.9	8.3	3.3	8.2	Tu 21	6:17	12:25	18:55	...
F 21	0:50	7:15	13:52	20:15	M 21	3:10	9:34	15:54	22:25	W 22	6:17	12:25	18:55	...
S 22	4.1	7.8	4.0	7.5	Tu 22	3.6	8.7	2.7	8.9	Th 23	6:17	12:25	18:55	...
M 23	2:30	9:00	15:27	22:06	W 23	4:18	10:48	16:49	23:26	S 24	6:17	12:25	18:55	...
Tu 24	4.4	7.8	3.8	7.9	Th 24	2.7	9.6	1.7	10.0	Tu 25	6:17	12:25	18:55	...
W 25	3:57	10:32	16:35	23:15	M 25	5:11	11:46	17:38	...	W 26	6:17	12:25	18:55	...
Th 26	3.8	8.6	2.9	8.9	Tu 26	1.6	10.7	0.6	...	Th 27	6:17	12:25	18:55	...
F 27	4:56	11:38	17:24	...	W 27	0:15	6:00	12:35	18:22	S 28	6:17	12:25	18:55	...
S 28	2.7	9.7	1.7	...	Th 28	11.0	0.4	11.6	-0.3	Tu 29	6:17	12:25	18:55	...
M 29	0:06	5:42	12:21	18:08	M 29	1:00	6:44	13:21	19:05	W 30	6:17	12:25	18:55	...
Tu 30	10.0	1.5	10.9	0.5	Tu 30	12.0	-0.5	12.4	-0.9	Th 31	6:17	12:25	18:55	...
W 31	0:47	6:25	13:03	18:50	W 31	1:42	7:27	14:05	19:47	S 1	6:17	12:25	18:55	...
Th 32	11.1	0.3	11.9	-0.5	Th 32	12.6	-1.4	12.7	-1.2	Tu 2	6:17	12:25	18:55	...
F 33	1:25	7:06	13:42	19:29	M 33	2:25	8:11	14:49	20:30	W 3	6:17	12:25	18:55	...
S 34	12.1	-0.6	12.6	-1.2	Tu 34	12.9	-1.4	12.8	-1.1	Th 4	6:17	12:25	18:55	...
M 35	2:04	7:45	14:22	20:06	W 35	3:07	8:55	15:35	21:13	S 5	6:17	12:25	18:55	...
Tu 36	12.6	-1.3	12.9	-1.4	Th 36	12.9	-1.3	12.4	-0.7	Tu 6	6:17	12:25	18:55	...
W 37	2:42	8:28	15:05	20:46	M 37	3:52	9:41	16:20	21:59	W 7	6:17	12:25	18:55	...
Th 38	12.8	-1.6	12.9	-1.3	Tu 38	12.5	-0.8	11.8	0.1	Th 8	6:17	12:25	18:55	...
F 39	3:28	9:09	15:45	21:30	W 39	4:40	10:20	17:12	22:50	S 9	6:17	12:25	18:55	...
S 40	12.7	-1.3	12.5	-0.8	Th 40	11.8	0.1	10.9	1.2	Tu 10	6:17	12:25	18:55	...
M 41	4:06	9:54	16:31	22:14	M 41	6:32	11:30	18:12	23:30	W 11	6:17	12:25	18:55	...
Tu 42	12.2	-0.7	11.7	0.1	Tu 42	11.0	1.2	10.0	2.3	Th 12	6:17	12:25	18:55	...
W 43	4:50	10:43	17:28	23:06	W 43	6:34	12:41	19:20	...	S 13	6:17	12:25	18:55	...
Th 44	11.4	0.2	10.8	1.3	Th 44	10.1	2.2	9.2	...	Tu 14	6:17	12:25	18:55	...
F 45	6:42	11:41	18:21	...	M 45	1:10	7:45	14:09	20:45	W 15	6:17	12:25	18:55	...
S 46	10.5	1.4	9.3	...	Tu 46	3.2	9.4	2.8	8.6	Th 16	6:17	12:25	18:55	...
M 47	0:06	6:46	12:56	19:38	W 47	2:45	9:09	15:32	22:07	S 17	6:17	12:25	18:55	...
Tu 48	2.5	9.7	2.5	8.9	Th 48	3.5	9.2	2.9	8.9	Tu 18	6:17	12:25	18:55	...
W 49	1:33	8:09	14:34	21:23	M 49	4:08	10:26	16:40	23:13	W 19	6:17	12:25	18:55	...
Th 50	3.4	9.1	3.0	8.6	Tu 50	3.2	9.4	2.6	9.4	Th 20	6:17	12:25	18:55	...
F 51	8:18	9:41	16:01	22:41	W 51	5:08	11:00	17:32	...	S 21	6:17	12:25	18:55	...
S 52	3.5	9.1	2.9	9.0	Th 52	2.7	9.9	2.3	...	Tu 22	6:17	12:25	18:55	...
M 53	4:40	11:00	17:11	23:44	M 53	0:08	5:52	12:20	18:12	W 23	6:17	12:25	18:55	...
Tu 54	2.9	9.6	2.2	9.9	Tu 54	10.0	2.3	10.6	2.0	Th 24	6:17	12:25	18:55	...
W 55	5:35	11:57	17:59	...	W 55	0:45	6:28	13:08	18:41	S 25	6:17	12:25	18:55	...
Th 56	2.3	10.6	1.7	...	Th 56	10.5	2.0	10.8	1.8	Tu 26	6:17	12:25	18:55	...
F 57	0:31	6:16	12:44	18:36	M 57	1:21	7:00	13:40	19:09	W 27	6:17	12:25	18:55	...
S 58	10.6	1.8	11.2	1.3	Tu 58	10.9	1.7	10.8	1.6	Th 28	6:17	12:25	18:55	...
M 59	1:04	6:50	13:24	19:08	W 59	1:53	7:29	14:11	19:33	S 29	6:17	12:25	18:55	...
Tu 60	11.2	1.3	11.6	1.0	Th 60	11.0	1.6	10.7	1.4	Tu 30	6:17	12:25	18:55	...
W 61	1:44	7:21	13:59	19:35	M 61	...	...	...	...	W 31	6:17	12:25	18:55	...
Th 62	11.5	1.0	11.8	1.1	Tu 62	...	...	...	...	Th 32	6:17	12:25	18:55	...

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the Admiralty Charts for this region, and which is 6.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it. In order to refer the above heights to the plane used upon the Portuguese Charts of Lisbon Harbor, add 1.4 feet to each. A foot is about three-tenths of a meter.

The time used is Portuguese Standard, for the meridian 9° 05' W.; 0 is midnight, 12 is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance 15:47 is 3 47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.										MARCH.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.								W.		Mo.								W.	Mo.											
E D	M	1	1:35 2.0	7:17 12.6	14:00 1.9	20:47 11.5	A	Th	1	2:26 3.7	7:22 11.7	14:58 4.0	19:48 10.9	A	Th	1	1:09 2.1	6:02 13.3	13:30 2.7	18:16 12.8												
	Tu	2	2:20 3.1	9:10 11.7	14:50 3.1	22:09 10.9		F	2	3:12 4.7	8:10 10.8	15:45 5.0	20:55 10.3		F	2	1:46 3.3	6:36 12.6	14:10 3.8	18:52 12.1												
A	W	3	3:09 4.1	10:30 11.1	15:48 4.0	23:05 10.7	N	S	3	4:12 5.4	10:00 10.2	16:50 5.5	23:05 10.4	D	S	3	2:30 4.3	7:16 11.7	14:56 4.9	19:40 11.2												
	Th	4	4:07 4.9	11:22 11.0	16:44 4.7	23:52 10.8		S	4	5:28 5.5	11:45 10.6	18:07 5.2	23:05 10.4		S	4	3:21 5.2	8:13 10.7	15:55 5.6	20:55 10.5												
N	F	5	5:15 5.1	12:10 11.0	17:52 4.7	O	M	5	0:17 11.1	6:45 4.8	12:45 11.2	19:16 4.3	N	M	5	4:34 5.5	10:15 10.2	17:18 5.6	23:17 10.8													
	S	6	0:33 11.2	6:25 4.7	12:50 11.4		18:57 4.2	Tu	6	1:10 12.0	7:48 3.4	13:35 12.1		20:10 3.0	Tu	6	5:59 5.1	12:10 10.9	18:37 4.8	19:40 8.2												
O	S	7	1:10 11.7	7:25 3.9	13:26 11.9	19:50 3.4	C	W	7	1:54 13.1	8:38 2.0	14:16 18.1	20:58 1.7	C	W	7	0:33 11.9	7:13 3.8	13:09 12.1													
	M	8	1:43 12.5	8:17 2.8	14:00 12.5	20:37 2.4		Th	8	2:33 14.3	9:20 0.6	14:52 14.1	21:40 0.4		Th	8	1:30 13.2	8:10 2.0	13:53 18.4	20:32 1.6												
C	Tu	9	2:12 13.8	9:00 1.7	14:29 13.2	21:18 1.5	E	F	9	3:10 15.2	10:02 -0.5	15:30 14.8	22:20 -0.5	E	F	9	2:15 14.6	8:55 0.4	14:35 14.6	21:15 0.0												
	W	10	2:47 14.1	9:42 0.7	15:01 13.8	22:00 0.8		S	10	3:50 16.0	10:42 -1.2	16:05 15.4	23:00 -1.0		S	10	2:54 15.8	9:39 -1.0	15:12 15.6	21:58 -1.2												
P	Th	11	3:18 14.7	10:22 0.1	15:39 14.2	22:39 0.3	F	S	11	4:25 16.4	11:23 -1.5	16:42 15.6	23:40 -1.2	F	S	11	3:31 16.6	10:20 -1.9	15:49 16.3	22:39 -2.0												
	F	12	3:54 15.3	11:02 -0.4	16:12 14.5	23:20 0.0		M	12	5:02 16.3	12:02 -1.4	17:18 15.5	23:00 0.0		M	12	4:09 17.1	11:00 -2.3	16:25 16.5	23:20 -2.2												
E	S	13	4:30 15.5	11:42 -0.5	16:50 14.6	23:59 0.1	C	Tu	13	0:20 -0.8	5:40 15.9	12:43 -0.7	17:57 14.9	C	Tu	13	4:45 17.0	11:38 -2.1	17:00 16.3	23:59 -1.7												
	S	14	5:10 15.5	12:22 -0.3	17:30 14.4	23:00 0.0		W	14	1:02 0.0	6:19 15.0	13:27 0.3	18:39 14.0		W	14	5:24 16.4	12:22 -1.3	17:40 15.6	18:18 14.5												
C	M	15	0:40 0.5	5:50 15.1	13:05 0.3	18:11 14.0	S	Th	15	1:46 1.1	7:05 13.9	14:13 1.8	19:28 12.9	S	Th	15	0:41 -0.8	6:03 15.3	13:05 -0.1													
	Tu	16	1:23 1.1	6:35 14.4	13:50 1.1	18:59 13.8		F	16	2:35 2.5	8:00 12.5	15:06 3.0	20:42 11.8		F	16	1:27 0.5	6:43 14.0	13:52 1.4	19:05 13.2												
P	W	17	2:07 2.0	7:25 13.5	14:38 2.1	19:59 12.5	S	S	17	3:35 3.6	9:58 11.5	16:10 4.1	22:54 11.3	S	S	17	2:16 2.0	7:41 12.4	14:44 3.0	20:15 11.8												
	Th	18	3:00 2.9	8:33 12.5	15:33 3.0	21:29 11.9		S	18	4:50 4.3	11:42 11.4	17:30 4.4	23:00 0.0		S	18	3:14 3.4	10:15 11.3	15:47 4.2	22:59 11.2												
S	F	19	4:02 3.6	10:15 12.0	16:40 3.6	23:05 11.9	E	M	19	0:17 11.7	6:15 4.1	12:56 12.0	18:51 3.8	E	M	19	4:28 4.2	11:50 14.3	17:09 4.6	18:36 4.1												
	S	20	5:15 3.9	11:40 12.1	17:57 3.6	23:00 11.9		Tu	20	1:24 12.6	7:29 8.0	14:02 12.8	19:57 2.6		Tu	20	0:20 14.7	5:56 4.1	13:03 12.0													
●	S	21	0:17 12.4	6:34 8.4	12:50 12.6	19:09 3.0	●	W	21	2:21 13.5	8:27 1.7	14:50 13.5	20:47 1.4	●	W	21	1:23 12.5	7:15 3.2	13:59 12.8	19:42 3.0												
	M	22	1:18 13.2	7:43 2.3	13:50 13.3	20:09 1.8		Th	22	3:10 14.3	9:11 0.5	15:35 14.1	21:30 0.4		Th	22	2:18 13.4	8:10 2.0	14:48 13.5	20:30 1.8												
E	Tu	23	2:13 14.0	8:37 1.0	14:42 13.9	21:00 1.8	E	F	23	3:45 14.8	9:53 -0.4	16:09 14.3	22:10 -0.2	E	F	23	3:01 14.1	8:53 0.9	15:23 13.9	21:12 0.9												
	W	24	3:02 14.7	9:25 0.0	15:29 14.4	21:45 0.0		S	24	4:15 15.1	10:30 -0.8	16:33 14.3	22:46 -0.4		S	24	3:35 14.6	9:32 0.1	15:47 14.2	21:48 0.2												
A	Th	25	3:47 15.2	10:08 -0.8	16:10 14.6	22:28 -0.5	A	S	25	4:41 15.0	11:07 -0.7	16:47 14.2	23:22 -0.2	A	S	25	3:58 14.7	10:08 -0.2	16:05 14.1	22:22 0.0												
	F	26	4:25 15.3	10:50 -1.1	16:43 14.4	23:07 -0.5		M	26	4:58 14.8	11:42 -0.3	17:08 13.9	23:58 0.8		M	26	4:12 14.6	10:41 -0.2	16:13 14.1	22:58 0.0												
A	S	27	4:56 15.1	11:30 -0.9	17:15 14.1	23:45 -0.2	A	Tu	27	5:18 14.4	12:18 0.5	17:24 13.6	23:00 0.0	A	Tu	27	4:22 14.5	11:15 0.2	16:25 14.1	23:32 0.5												
	S	28	5:28 14.7	12:01 -0.4	17:40 13.6	23:00 11.6		W	28	0:33 1.1	5:37 14.0	12:55 1.5	17:45 13.8		W	28	4:40 14.3	11:50 0.8	16:46 14.0	17:43 13.6												
A	M	29	0:24 0.5	5:54 14.1	12:47 0.5	18:08 12.9	A	Th	29	0:06 1.1	5:02 14.0	12:25 1.7	17:12 13.9	A	Th	29	0:06 1.1	5:02 14.0	12:25 1.7													
	Tu	30	1:05 1.3	6:20 13.3	13:27 1.5	18:37 12.3		F	30	0:41 1.9	5:29 13.7	13:00 2.6	17:43 13.6		F	30	0:41 1.9	5:29 13.7	13:00 2.6													
A	W	31	1:43 2.5	6:48 12.6	14:08 2.8	19:03 11.6	A	S	31	1:18 3.0	6:02 13.0	13:38 3.7	18:20 12.9	A	S	31	1:18 3.0	6:02 13.0	13:38 3.7													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the French Charts for this region, and which is 8.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian, 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☉, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
N	S	1	2:00 3.9	6:43 12.2	14:20 4.7	19:05 12.1	☾	Tu	1	2:28 4.0	7:13 11.6	14:50 4.7	19:45 11.8	F	1	4:03 3.6	10:00 11.7	16:32 4.0	22:34 12.4	
☾	M	2	2:50 4.7	7:36 11.2	15:15 5.4	20:10 11.2	☾	W	2	3:27 4.4	8:35 10.9	15:55 4.9	21:31 11.5	E	S	2	5:10 3.2	11:17 12.6	17:40 8.3	23:43 13.3
	Tu	3	3:55 5.1	9:06 10.4	16:29 5.5	22:12 11.0		Th	3	4:37 4.7	10:45 11.3	17:09 4.4	23:18 12.2		S	3	6:17 2.5	12:15 13.6	18:48 2.3	
	W	4	5:14 4.9	11:25 11.0	17:51 4.8	23:58 12.0		F	4	5:50 3.5	11:57 12.5	18:22 3.3			M	4	0:39 14.2	7:20 1.5	13:06 14.6	19:48 1.6
	Th	5	6:33 3.7	12:33 12.2	19:04 3.3			S	5	0:21 13.5	6:58 2.2	12:50 13.8	19:25 1.8		Tu	5	1:29 15.0	8:15 0.3	13:54 15.5	20:42 -0.2
	F	6	0:57 13.4	7:35 2.1	13:25 13.6	20:00 1.5	E	S	6	1:11 14.7	7:52 0.7	13:37 15.0	20:17 0.3	P	W	6	2:16 15.7	9:06 -0.6	14:39 16.1	21:32 -1.1
	S	7	1:45 14.8	8:26 0.4	14:06 15.0	20:48 -0.1		M	7	1:57 15.7	8:42 -0.5	14:18 16.0	21:05 -1.0		Th	7	3:03 16.0	9:53 -1.2	15:24 16.4	22:17 -1.6
E	S	8	2:28 16.0	9:11 -1.0	14:46 16.1	21:32 -1.4	☾	Tu	8	2:40 16.5	9:28 -1.5	15:00 16.7	21:50 -1.8	S	F	8	3:47 15.9	10:37 -1.3	16:09 16.3	23:05 -1.7
☾	M	9	3:07 16.9	9:54 -2.0	15:25 16.8	22:14 -2.2	☾	W	9	3:22 16.8	10:12 -1.9	15:43 16.9	22:36 -2.2		S	9	4:34 15.4	11:24 -1.1	16:56 15.7	23:48 -1.3
P	Tu	10	3:45 17.2	10:35 -2.4	16:03 17.0	22:56 -2.5		Th	10	4:05 16.6	10:57 -1.9	16:22 16.6	23:20 -2.0		S	10	5:23 14.6	12:10 -0.4	17:45 14.8	
	W	11	4:25 17.1	11:17 -2.2	16:40 16.7	23:40 -2.1		F	11	4:48 16.0	11:42 -1.3	17:05 15.9			M	11	0:35 -0.5	6:22 13.6	12:56 0.6	18:47 13.8
	Th	12	5:05 16.4	12:00 -1.4	17:20 15.9		S	S	12	0:07 -1.3	5:33 14.9	12:27 -0.3	17:50 14.8	☾	Tu	12	1:19 0.5	8:02 12.6	13:44 1.7	20:35 12.8
	F	13	0:23 -1.2	5:45 15.2	12:45 -0.3	18:01 14.7		S	13	0:52 -0.3	6:26 13.6	13:15 0.9	18:51 13.5		W	13	2:08 1.6	9:33 12.0	14:36 2.9	21:57 12.2
S	S	14	1:10 0.1	6:32 13.8	13:32 1.2	18:51 13.3		M	14	1:43 1.0	8:13 12.3	14:06 2.3	20:59 12.3		Th	14	3:05 2.6	10:39 11.8	15:33 3.7	22:57 12.1
☾	S	15	2:00 1.6	7:41 12.2	14:25 2.8	20:36 11.9	☾	Tu	15	2:35 2.3	10:08 11.8	15:04 3.5	22:34 12.0	E	F	15	4:08 3.4	11:33 11.8	16:36 4.3	23:51 12.0
	M	16	2:52 2.9	10:22 11.4	15:29 4.0	22:55 11.6		W	16	3:35 3.1	11:15 11.9	16:10 4.2	23:36 12.2		S	16	5:12 3.8	12:23 11.8	17:43 4.4	
	Tu	17	4:05 3.8	11:40 11.6	16:42 4.5			Th	17	4:50 3.6	12:15 12.2	17:23 4.2			S	17	0:40 12.0	6:18 3.8	13:02 12.0	18:47 4.0
	W	18	0:05 12.0	5:27 3.9	12:47 12.1	18:07 4.2	E	F	18	0:32 12.5	6:03 3.4	13:05 12.6	18:35 3.8	A	M	18	1:17 12.2	7:15 3.5	13:37 12.3	19:41 3.4
	Th	19	1:07 12.6	6:45 3.3	13:37 12.8	19:15 3.3		S	19	1:18 12.8	7:05 3.0	13:42 12.9	19:30 3.1		Tu	19	1:51 12.4	8:03 3.0	14:05 12.6	20:27 2.7
	F	20	1:53 13.3	7:43 2.4	14:22 13.3	20:05 2.3		S	20	1:57 13.1	7:55 2.3	14:17 13.1	20:15 2.4		W	20	2:15 12.5	8:48 2.5	14:25 12.8	21:09 2.0
E	S	21	2:36 13.8	8:27 1.5	14:56 13.7	20:46 1.5		M	21	2:30 13.2	8:35 1.9	14:42 13.2	20:54 1.8	●	Th	21	2:34 12.7	9:27 2.0	14:41 13.2	21:48 1.5
	S	22	3:07 14.0	9:06 0.9	15:20 13.7	21:21 0.9	A	Tu	22	2:51 13.2	9:14 1.6	14:56 13.3	21:38 1.4	N	F	22	2:58 13.0	10:06 1.7	15:12 13.7	22:27 1.2
●	M	23	3:26 14.0	9:42 0.6	15:31 13.7	21:59 0.6	●	W	23	3:02 13.3	9:50 1.4	15:09 13.5	22:10 1.2		S	23	3:27 13.3	10:44 1.5	15:42 14.2	23:17 1.0
	Tu	24	3:38 13.9	10:15 0.6	15:39 13.8	22:33 0.6		Th	24	3:20 13.3	10:27 1.4	15:31 13.8	22:46 1.2		S	24	3:59 13.3	11:22 1.5	16:17 14.4	23:44 1.0
A	W	25	3:48 14.0	10:50 0.8	15:55 14.0	23:08 0.8		F	25	3:42 13.5	11:04 1.6	15:55 14.1	23:23 1.3		M	25	4:35 13.6	11:59 1.7	16:54 14.5	
	Th	26	4:08 13.9	11:25 1.3	16:17 14.1	23:42 1.3	N	S	26	4:11 13.6	11:40 2.0	16:26 14.2			Tu	26	0:24 1.2	5:14 13.5	12:41 1.8	17:35 14.3
	F	27	4:33 13.9	12:00 1.9	16:45 14.2			S	27	0:00 1.6	4:45 13.5	12:17 2.4	17:03 14.1		W	27	1:07 1.5	5:58 13.3	13:23 2.3	18:20 13.8
	S	28	0:20 1.9	5:03 13.6	12:35 2.7	17:18 14.0		M	28	0:40 2.2	5:24 13.3	12:59 2.9	17:42 13.8		Th	28	1:50 2.0	6:47 12.9	14:08 2.8	19:13 13.3
N	S	29	0:56 2.6	5:38 13.2	13:15 3.5	17:56 13.4		Tu	29	1:23 2.6	6:08 12.8	13:40 3.4	18:30 13.2	☾	F	29	2:37 2.6	7:48 12.4	14:57 3.2	20:20 12.7
	M	30	1:40 3.4	6:21 12.5	13:59 4.2	18:43 12.7	☾	W	30	2:10 3.1	7:00 12.1	14:30 3.8	19:29 12.5		S	30	3:31 3.0	9:10 12.0	15:57 3.5	21:50 12.4
							☾	Th	31	3:02 3.5	8:14 11.6	15:25 4.1	20:56 12.1							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the French Charts for this region, and which is 8.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										AUGUST.										SEPTEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
P	S	1	4:34 3.2	10:38 12.3	17:04 3.6	23:10 12.7	P	W	1	0:06 12.4	6:29 3.4	12:37 13.0	19:05 2.9	O	S	1	2:14 13.5	8:20 1.6	14:33 14.3	20:45 0.7									
	M	2	5:42 3.1	11:46 13.0	18:15 3.0		S	Th	2	1:10 13.1	7:36 2.4	13:35 13.8	20:07 1.5			S	2	3:00 14.2	9:06 0.5	15:17 15.0	21:30 -0.3								
	Tu	3	0:14 13.3	6:50 2.5	12:45 13.8	19:23 2.0		F	3	2:03 13.8	8:30 1.2	14:28 14.6	21:00 0.3			M	3	3:35 14.7	9:48 -0.4	15:50 15.4	22:10 -1.0								
	W	4	1:12 14.0	7:52 1.4	13:39 14.6	20:20 0.8	O	S	4	2:54 14.4	9:21 0.1	15:15 15.3	21:45 -0.7			Tu	4	4:05 14.8	10:25 -0.7	16:18 15.4	22:48 -1.1								
	Th	5	2:03 14.6	8:45 0.4	14:27 15.4	21:12 -0.3		S	5	3:38 14.8	10:05 -0.6	15:59 15.6	22:30 -1.2		E	W	5	4:27 14.7	11:05 -0.7	16:40 15.1	23:25 -0.7								
S	F	6	2:52 15.0	9:35 -0.4	15:17 15.7	22:00 -1.1		M	6	4:20 14.8	10:47 -0.9	16:38 15.5	23:10 -1.3		Th	6	4:49 14.3	11:40 -0.2	17:03 14.6										
	S	7	3:40 15.2	10:20 -0.9	16:02 15.8	22:47 -1.4		Tu	7	4:55 14.6	11:28 -0.7	17:18 15.2	23:50 -0.9		F	7	0:02 0.0	5:10 13.9	12:17 0.6	17:25 14.0									
	S	8	4:28 15.0	11:05 -0.9	16:50 15.6	23:30 -1.3		W	8	5:23 14.1	12:07 -0.2	17:43 14.5			S	8	0:39 1.1	5:33 13.4	12:55 1.7	17:50 13.2									
	M	9	5:17 14.6	11:50 -0.6	17:37 15.0		E	Th	9	0:30 -0.2	5:58 13.5	12:48 0.7	18:18 13.7		S	9	1:17 2.4	6:00 12.7	13:35 3.0	18:20 12.4									
	Tu	10	0:08 -0.8	6:05 13.8	12:34 0.1	18:27 14.2		F	10	1:12 0.9	6:23 12.7	13:28 1.9	18:43 12.8	A	M	10	1:58 3.7	6:34 11.9	14:18 4.1	18:56 11.4									
E	W	11	0:54 0.0	7:03 13.0	13:17 1.1	19:30 13.3		S	11	1:53 2.2	6:52 11.8	14:10 3.1	19:13 11.8	○	Tu	11	2:43 4.8	7:16 11.1	15:09 5.1	19:47 10.4									
	Th	12	1:39 1.1	8:20 12.2	14:01 2.3	20:45 12.3	○	S	12	2:38 3.6	7:30 11.0	14:58 4.3	19:58 10.8	N	W	12	3:40 5.1	8:24 10.3	16:17 5.6	21:45 9.9									
	F	13	2:31 2.3	9:40 11.5	14:51 3.4	22:03 11.7	A	M	13	3:28 4.7	8:35 10.3	15:54 5.2	22:40 10.1		Th	13	4:54 5.8	11:20 10.4	17:35 6.2										
	S	14	3:20 3.4	10:40 11.0	15:45 4.3	23:04 11.2		Tu	14	4:30 5.4	11:20 10.2	17:01 5.5	23:53 10.3		F	14	0:05 10.6	6:15 5.1	12:32 11.5	18:52 4.2									
	S	15	4:19 4.3	11:32 10.9	16:48 4.9	23:52 11.0		W	15	5:43 5.4	12:13 10.8	18:21 5.1			S	15	1:00 11.7	7:20 3.8	13:20 12.7	19:50 2.6									
A	M	16	5:25 4.7	12:20 11.1	17:58 4.9		N	Th	16	0:45 11.0	6:53 4.7	18:00 11.6	19:27 4.0		S	16	1:38 13.0	8:10 2.2	13:57 14.1	20:36 1.0									
	Tu	17	0:37 11.2	6:30 4.6	12:56 11.5	19:02 4.4		F	17	1:25 11.7	7:51 3.5	13:42 12.6	20:20 2.6		M	17	2:15 14.1	8:55 0.6	14:34 15.3	21:18 -0.3									
	W	18	1:16 11.6	7:30 3.9	13:31 12.0	19:59 3.4		S	18	2:00 12.6	8:39 2.3	14:20 13.6	21:03 1.3	●	Tu	18	2:49 15.3	9:37 -0.6	15:08 16.2	21:59 -1.4									
	Th	19	1:50 12.0	8:20 3.1	14:03 12.6	20:45 2.5		S	19	2:35 13.5	9:20 1.1	14:51 14.6	21:43 0.2	E	W	19	3:25 16.1	10:17 -1.5	15:43 16.8	22:38 -1.8									
	F	20	2:18 12.5	9:03 2.3	14:32 13.4	21:27 1.5	●	M	20	3:09 14.4	10:01 0.1	15:26 15.4	22:24 -0.6		Th	20	3:58 16.5	10:58 -1.9	16:18 17.0	23:18 -1.8									
●	S	21	2:50 13.1	9:45 1.5	15:04 14.0	22:07 0.8		Tu	21	3:42 15.0	10:41 -0.6	16:00 15.9	23:01 -1.0		F	21	4:32 16.4	11:39 -1.6	16:54 16.4	23:58 -1.2									
	S	22	3:18 13.6	10:24 0.9	15:37 14.6	22:47 0.3		W	22	4:16 15.4	11:21 -0.9	16:37 16.1	23:42 -1.0	P	S	22	5:10 15.9	12:20 -0.9	17:32 15.6										
	M	23	3:55 14.0	11:04 0.5	16:12 15.0	23:25 0.0	E	Th	23	4:51 15.5	12:00 -0.7	17:13 15.9			S	23	0:37 -0.2	5:48 15.0	13:04 0.3	18:12 14.3									
	Tu	24	4:30 14.3	11:41 0.4	16:48 15.2			F	24	0:21 -0.6	5:30 15.2	12:40 -0.1	17:52 15.3		M	24	1:26 1.2	6:30 13.7	13:50 1.7	19:00 12.8									
	W	25	0:05 0.0	5:08 14.3	12:21 0.5	17:30 15.0		S	25	1:03 0.3	6:09 14.6	13:23 0.9	18:30 14.2	☾	Tu	25	2:17 2.6	7:25 12.3	14:46 3.0	20:45 11.4									
E	Th	26	0:45 0.4	5:46 14.2	13:01 1.0	18:07 14.6		S	26	1:48 1.5	6:53 13.4	14:10 2.2	19:20 13.0		W	26	3:18 3.8	10:10 11.2	15:53 3.9	23:17 11.2									
	F	27	1:28 1.1	6:29 13.6	13:45 1.7	18:53 13.9	☾	M	27	2:38 2.7	7:48 12.2	15:04 3.3	20:32 11.8		Th	27	4:32 4.5	11:47 11.6	17:15 4.1										
	S	28	2:11 1.9	7:20 13.0	14:33 2.6	19:49 13.0		Tu	28	3:37 3.8	8:32 11.4	16:10 4.1	22:57 11.3		F	28	0:31 11.8	5:57 4.2	12:53 12.8	18:39 3.4									
	S	29	3:03 2.8	8:25 12.3	15:27 3.4	21:07 12.1	S	W	29	4:50 1.3	11:33 11.6	17:34 4.1			S	29	1:26 12.7	7:10 3.2	13:44 13.4	19:41 2.2									
	M	30	4:02 3.5	10:02 11.9	16:33 3.8	22:48 11.9		Th	30	0:18 11.8	6:13 4.0	12:47 12.4	18:54 3.3		S	30	2:14 13.6	8:05 1.9	14:30 14.2	20:30 0.9									
	Tu	31	5:13 3.8	11:30 12.2	17:51 3.7			F	31	1:22 12.7	7:24 2.9	13:45 13.4	19:56 2.0																

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the French Charts for this region, and which is 8.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian 2°20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

The time used is Paris Mean Civil, for the meridian  $2^{\circ} 20' E$ ; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

☉, new moon; ☾, 1st quar; ☽, full moon; ☿, 3d quar; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.										MARCH.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E D	M	1	2:10 3.3	8:19 16.0	14:37 3.5	20:46 14.9	D A	Th	1	2:58 4.8	9:06 14.3	15:16 5.1	21:31 13.8	A	Th	1	1:37 3.3	7:38 15.9	13:55 3.7	19:53 15.3												
	Tu	2	3:00 4.4	9:15 15.0	15:30 4.4	21:45 14.2		F	2	3:36 5.9	9:58 13.3	16:05 6.1	22:30 13.1		F	2	2:06 4.3	8:12 14.8	14:25 4.7	20:32 14.3												
A	W	3	3:50 5.4	10:12 14.2	16:22 5.3	22:45 13.6	S	S	3	4:36 6.7	11:02 12.8	17:12 6.8	23:42 13.0	D	S	3	2:48 5.3	8:55 13.7	15:04 5.7	21:25 13.3												
	Th	4	4:50 6.2	11:12 13.6	17:22 6.0	23:43 13.5		S	4	5:58 7.0	12:13 13.0	18:37 6.6			S	4	3:33 6.3	9:55 12.8	16:03 6.7	22:40 12.7												
N	F	5	6:00 6.4	12:10 13.5	18:30 6.1		N	M	5	0:46 13.5	7:21 6.3	13:15 13.7	19:50 5.5	N	M	5	4:48 7.0	11:20 12.6	17:35 7.1													
	S	6	0:38 13.8	7:10 6.0	13:03 13.8	19:35 5.4		Tu	6	1:45 14.5	8:24 4.8	14:10 14.8	20:48 4.1		Tu	6	0:05 13.0	6:29 6.7	12:40 13.3	19:11 6.2												
C	S	7	1:30 14.4	8:08 5.1	13:58 14.5	20:28 4.4	W	W	7	2:35 15.9	9:14 3.2	15:00 16.2	21:35 2.5	W	W	7	1:12 14.1	7:50 5.3	13:43 14.5	20:19 4.5												
	M	8	2:17 15.3	8:55 4.0	14:40 15.4	21:14 3.3		Th	8	3:23 17.3	9:58 1.7	15:45 17.6	22:17 1.2		Th	8	2:09 15.7	8:45 3.4	14:35 16.2	21:10 2.6												
C	Tu	9	3:02 16.4	9:38 2.8	15:22 16.5	21:55 2.3	O	F	9	4:07 18.5	10:37 0.4	16:29 18.7	22:55 0.3	O	F	9	2:59 17.4	9:33 1.5	15:23 17.9	21:53 0.9												
	W	10	3:44 17.3	10:18 1.8	16:04 17.4	22:35 1.5		S	10	4:47 19.5	11:17 -0.4	17:10 19.3	23:33 -0.2		S	10	3:45 18.9	10:15 -0.1	16:07 19.3	22:32 -0.4												
E	Th	11	4:25 18.2	10:55 1.0	16:45 18.0	23:12 1.1	E	S	11	5:25 20.1	11:55 -0.8	17:48 19.5		E	S	11	4:27 20.2	10:54 -1.2	16:48 20.2	23:11 -1.2												
	F	12	5:08 18.8	11:33 0.6	17:23 18.3	23:50 1.0		M	12	0:11 -0.3	6:07 20.1	12:35 -0.7	18:29 19.3		M	12	5:06 21.0	11:33 -1.6	17:27 20.5	23:50 -1.4												
P	S	13	5:42 19.0	12:12 0.4	18:04 18.3		P	Tu	13	0:50 0.1	6:50 19.6	13:13 0.0	19:13 18.6	P	Tu	13	5:45 21.0	12:13 -1.5	18:07 20.2													
	S	14	0:28 1.1	6:25 18.8	12:52 0.7	18:48 17.9		W	14	1:30 0.9	7:35 18.5	13:55 1.1	20:00 17.4		W	14	0:30 -0.9	6:30 20.3	12:52 -0.6	18:52 19.4												
C	M	15	1:07 1.6	7:08 18.2	13:32 1.2	19:33 17.3	C	Th	15	2:12 2.1	8:25 17.2	14:42 2.4	20:52 16.1	C	Th	15	1:10 0.0	7:15 19.1	13:35 0.7	19:38 18.1												
	Tu	16	1:48 2.3	7:55 17.3	14:15 2.1	20:23 16.5		F	16	3:01 3.3	9:24 15.7	15:38 3.9	21:55 14.9		F	16	1:55 1.4	8:07 17.5	14:22 2.3	20:24 16.5												
P	W	17	2:32 3.1	8:48 16.4	15:06 3.0	21:20 15.6	S	S	17	4:06 4.6	10:37 14.7	16:50 5.1	23:15 14.3	S	S	17	2:45 3.0	9:03 15.9	15:15 3.9	21:33 15.1												
	Th	18	3:26 4.0	9:50 15.5	16:05 4.0	22:26 14.8		S	18	5:30 5.4	11:57 14.3	18:20 5.5			S	18	3:49 4.4	10:20 14.5	16:30 5.3	22:55 14.3												
S	F	19	4:33 4.8	11:00 14.9	17:18 4.8	23:40 14.7	S	M	19	0:30 14.5	7:03 5.1	13:13 14.6	19:45 4.6	M	M	19	5:13 5.4	11:43 14.0	18:02 5.8													
	S	20	5:55 5.1	12:13 14.9	18:40 4.8			Tu	20	1:42 15.3	8:19 3.7	14:18 15.5	20:46 3.2		Tu	20	0:18 14.4	6:50 5.2	13:02 14.3	19:30 4.9												
E	S	21	0:48 15.1	7:18 4.5	13:22 15.4	19:55 3.9	W	W	21	2:40 16.5	9:15 2.2	15:10 16.5	21:35 1.8	W	W	21	1:29 15.1	8:05 4.0	14:05 15.1	20:32 3.5												
	M	22	1:50 16.0	8:28 3.1	14:24 16.8	20:55 2.5		Th	22	3:30 17.7	10:00 1.0	15:57 17.5	22:18 0.7		Th	22	2:27 16.2	9:00 2.5	14:55 16.2	21:20 2.0												
●	Tu	23	2:48 17.2	9:23 1.7	15:18 17.3	21:45 1.3	●	F	23	4:14 18.7	10:41 0.1	16:36 18.3	22:56 0.0	F	F	23	3:13 17.3	9:43 1.4	15:37 17.3	22:00 0.9												
	W	24	3:39 18.2	10:10 0.6	16:07 18.0	22:30 0.4		S	24	4:53 19.3	11:17 -0.3	17:13 18.6	23:32 -0.1		S	24	3:55 18.2	10:20 0.3	16:15 18.0	22:36 0.3												
E	Th	25	4:26 19.0	10:55 -0.2	16:50 18.5	23:12 0.0	E	S	25	5:30 19.3	11:51 -0.1	17:47 18.5		E	S	25	4:32 18.8	10:55 0.1	16:47 18.5	23:10 0.1												
	F	26	5:08 19.4	11:34 -0.4	17:32 18.6	23:50 0.0		M	26	0:05 0.2	6:00 18.9	12:22 0.5	18:16 18.0		M	26	5:04 18.9	11:26 0.2	17:18 18.6	23:40 0.4												
S	S	27	5:47 19.3	12:12 -0.1	18:09 18.2		W	Tu	27	0:37 1.0	6:34 18.1	12:55 1.4	18:50 17.3	A	Tu	27	5:35 18.5	11:55 0.8	17:45 18.1													
	S	28	0:28 0.5	6:27 18.8	12:50 0.5	18:47 17.6		W	28	1:08 2.1	7:06 17.1	13:25 2.5	19:20 16.4		W	28	0:10 1.1	6:00 17.9	12:25 1.6	18:13 17.5												
E	M	29	1:05 1.4	7:05 17.9	13:25 1.6	19:23 16.8	A							A	Th	29	0:40 2.0	6:32 17.1	12:52 2.6	18:43 16.7												
	Tu	30	1:40 2.5	7:45 16.8	14:01 2.7	20:05 15.8									F	30	1:06 3.0	7:00 16.2	13:18 3.6	19:15 15.8												
	W	31	2:16 3.7	8:24 15.5	14:38 4.0	20:45 14.8								S	31	1:34 4.0	7:32 15.2	13:50 4.5	19:52 14.9													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the French Charts for this region, and which is 9.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☉, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
N	S	1	2:09 4.7	8:18 14.3	14:25 5.3	20:40 13.9	D	Tu	1	2:35 5.0	8:50 13.8	14:57 5.8	21:20 13.6	E	F	1	4:28 4.9	10:55 14.3	17:00 5.5	23:25 14.8									
D	M	2	2:56 5.6	9:10 13.3	15:20 6.2	21:50 18.0	W	2	3:39 5.6	10:07 13.3	16:10 6.4	22:45 13.5	E	S	2	5:43 4.6	12:04 15.0	18:16 4.8											
	Tu	3	4:03 6.4	10:36 12.8	16:45 6.9	23:20 13.1	Th	3	5:00 5.8	11:30 13.7	17:42 6.1			S	3	0:30 15.7	6:54 3.8	13:02 16.1	19:25 3.6										
	W	4	5:38 6.5	12:05 13.3	18:26 6.4		F	4	0:08 14.4	6:25 5.0	12:39 14.8	19:01 4.8		M	4	1:28 16.8	7:57 2.5	13:56 17.3	20:25 2.1										
	Th	5	0:37 14.1	7:07 5.5	13:12 14.6	19:43 4.8	S	5	1:05 15.8	7:33 3.5	13:35 16.4	20:08 3.0		Tu	5	2:22 17.9	8:53 1.3	14:48 18.5	21:18 0.8										
	F	6	1:38 15.6	8:12 3.5	14:07 16.3	20:40 2.7	E	S	6	2:00 17.3	8:40 1.8	14:25 17.9	20:55 1.3	P	W	6	3:13 18.9	9:43 0.3	15:37 19.4	22:07 -0.3									
	S	7	2:30 17.4	9:05 1.5	14:57 18.0	21:25 0.9	M	7	2:49 18.7	9:20 0.3	15:14 19.3	21:40 -0.1	○	Th	7	4:02 19.6	10:30 -0.4	16:24 20.1	22:54 -0.9										
E	S	8	3:18 19.1	9:48 -0.2	15:40 19.6	22:08 -0.6	○	Tu	8	3:35 19.9	10:06 -0.8	16:00 20.3	22:26 -1.1	S	F	8	4:50 19.7	11:16 -0.5	17:10 20.1	23:40 -0.9									
○	M	9	4:02 20.3	10:30 -1.3	16:24 20.6	22:49 -1.5	P	W	9	4:22 20.7	10:50 -1.3	16:44 20.7	23:10 -1.5		S	9	5:36 19.3	12:01 -0.2	17:56 19.7										
P	Tu	10	4:45 21.2	11:10 -1.8	17:05 20.9	23:30 -1.7	Th	10	5:05 20.6	11:32 -1.1	17:25 20.5	23:55 -1.3		S	10	0:26 -0.4	6:25 18.6	12:46 18.6	18:46 18.8										
	W	11	5:25 21.2	11:51 -1.6	17:45 20.7		F	11	5:50 20.0	12:17 -0.5	18:12 19.8			M	11	1:13 0.5	7:16 17.6	13:34 17.7	19:44 17.9										
	Th	12	0:11 -1.4	6:10 20.5	12:33 -0.7	18:30 19.8	S	S	12	0:40 -0.5	6:40 18.9	13:00 0.7	19:01 18.7	○	Tu	12	2:02 1.7	8:12 16.4	14:24 2.8	20:57 16.4									
	F	13	0:53 -0.4	6:56 19.2	13:16 0.6	19:18 18.5	S	S	13	1:28 0.7	7:32 17.5	13:50 2.1	19:56 17.2	○	W	13	2:55 2.9	9:12 15.4	15:20 4.1	21:29 15.3									
S	S	14	1:40 1.0	7:48 17.6	14:05 2.2	20:11 16.9	M	14	2:20 2.2	8:32 16.1	14:45 3.6	21:00 15.8		Th	14	3:54 4.0	10:17 14.7	16:22 5.0	22:45 14.9										
○	S	15	2:31 2.6	8:48 16.0	15:00 3.9	21:15 15.4	○	Tu	15	3:20 3.6	9:44 15.0	15:50 4.8	22:12 15.0	E	F	15	4:58 4.7	11:20 14.3	17:31 5.4	23:47 14.6									
	M	16	3:35 4.0	10:01 14.6	16:10 5.2	22:35 14.5	W	16	4:29 4.5	10:58 14.3	17:04 5.4	23:27 14.7		S	16	6:05 5.1	12:17 14.3	18:40 5.3											
	Tu	17	4:53 5.0	11:25 14.0	17:39 5.8	23:57 14.5	Th	17	5:46 4.9	12:06 14.3	18:23 5.3			S	17	0:43 14.6	7:09 4.9	13:10 14.6	19:36 4.9										
	W	18	6:23 5.0	12:40 14.2	19:04 5.1		E	F	18	0:33 14.9	6:59 4.6	13:05 14.7	19:30 4.5	A	M	18	1:32 14.8	8:01 4.4	13:55 15.1	20:40 4.2									
	Th	19	1:06 15.0	7:40 4.3	13:42 15.0	20:07 3.9	S	19	1:28 15.3	7:56 3.9	13:58 15.4	20:22 3.6		Tu	19	2:17 15.2	8:48 3.7	14:37 15.8	21:35 3.5										
	F	20	2:03 15.8	8:35 3.1	14:30 15.9	20:56 2.6	S	20	2:15 15.8	8:43 3.1	14:35 16.1	21:05 2.8		W	20	2:58 15.7	9:29 3.0	15:17 16.4	21:52 2.8										
E	S	21	2:50 16.7	9:17 2.0	15:10 16.8	21:35 1.6	M	21	2:55 16.4	9:23 2.4	15:14 16.7	21:43 2.2	●	Th	21	3:35 16.3	10:07 2.5	15:55 17.0	22:29 2.2										
	S	22	3:30 17.5	9:55 1.3	15:45 17.5	22:12 1.0	A	Tu	22	3:32 16.8	9:59 2.0	15:48 17.2	22:18 1.8	N	F	22	4:12 16.8	10:42 2.2	16:30 17.5	23:06 2.0									
●	M	23	4:08 17.9	10:28 0.9	16:20 18.0	22:45 0.8	●	W	23	4:05 17.1	10:33 1.8	16:21 17.6	22:50 1.7		S	23	4:48 17.0	11:18 2.1	17:05 17.7	23:58 1.8									
	Tu	24	4:36 18.1	11:00 0.9	16:50 18.1	23:15 0.9	Th	24	4:37 17.2	11:05 1.9	16:53 17.6	23:23 1.8		S	24	5:22 17.1	11:53 2.3	17:40 17.6											
A	W	25	5:05 17.9	11:30 1.3	17:18 17.9	23:46 1.4	F	25	5:08 17.1	11:36 2.2	17:22 17.5	23:55 2.1		M	25	0:14 2.0	6:00 17.0	12:28 2.6	18:20 17.5										
	Th	26	5:32 17.6	12:00 1.9	17:45 17.5		N	S	26	5:38 16.9	12:08 2.7	17:56 17.1		Tu	26	0:50 2.2	6:42 16.7	13:03 3.0	18:56 16.9										
	F	27	0:15 2.1	6:01 17.0	12:27 2.6	18:17 17.0	S	27	0:27 2.6	6:13 16.5	12:38 3.3	18:32 16.6		W	27	1:28 2.6	7:28 16.2	13:42 3.5	19:48 16.3										
	S	28	0:14 2.8	6:33 16.4	12:55 3.5	18:50 16.2	M	28	1:00 3.1	6:53 16.0	13:12 3.9	19:13 15.9		Th	28	2:11 3.1	8:19 15.7	14:28 4.0	20:42 15.7										
N	S	29	1:12 3.6	7:08 15.6	13:25 4.3	19:28 15.3	Tu	29	1:38 3.7	7:40 15.2	13:33 4.5	20:02 15.1	○	F	29	3:00 3.6	9:16 15.2	15:20 4.4	21:42 15.2										
	M	30	1:49 4.4	7:52 14.7	14:07 5.0	20:15 14.4	W	30	2:24 4.3	8:35 14.6	14:43 5.0	21:01 14.5	E	S	30	3:58 4.0	10:20 14.9	16:23 4.8	22:49 15.1										
	Th	31					D	Th	31	3:20 4.7	9:42 14.2	15:45 5.5	22:12 14.3																

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The time used is Paris Mean Civil, for the meridian 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

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JULY.					AUGUST.					SEPTEMBER.								
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				
S	1	5:09 4.4	11:32 15.0	17:41 4.8		P	W 1	0:46 15.3	7:13 4.3	13:16 15.8	19:48 3.7		S	1	2:40 16.6	9:06 2.0	15:00 17.6	21:33 1.1
M	2	0:01 15.5	6:23 4.2	12:34 15.7	18:55 4.1	S	Th 2	1:50 16.0	8:20 3.0	14:15 17.0	20:50 2.2	○	S	2	8:28 17.6	9:52 0.8	15:47 18.7	22:16 0.1
Tu	3	1:03 16.2	7:32 3.3	13:38 16.7	20:02 2.8	F	3	2:46 17.1	9:15 1.7	15:10 18.1	21:44 0.9	M	3	4:11 18.5	10:34 0.0	16:28 19.4	22:55 -0.4	
P W	4	2:01 17.1	8:33 2.1	14:27 17.8	21:00 1.5	○	S 4	3:38 18.0	10:05 0.6	16:00 19.0	22:30 0.0	Tu	4	4:50 18.9	11:10 -0.4	17:08 19.6	23:30 -0.4	
Th	5	2:55 18.0	9:27 1.0	15:19 18.7	21:53 0.3	S	5	4:25 18.6	10:50 0.0	16:45 19.5	23:12 -0.5	E W	5	5:26 18.8	11:47 -0.1	17:43 19.2		
S	6	3:47 18.7	10:15 0.2	16:08 19.4	22:40 -0.4	M	6	5:10 18.8	11:30 -0.2	17:23 19.6	23:57 -0.4	Th	6	0:06 0.2	6:00 18.4	12:21 0.6	18:16 18.4	
○	S 7	4:35 19.0	11:00 -0.1	16:55 19.8	23:26 -0.6	Tu	7	5:50 18.6	12:10 0.1	18:17 19.2		F	7	0:40 1.1	6:31 17.6	12:57 1.7	18:52 17.8	
S	8	5:24 18.9	11:45 0.0	17:40 19.6		W	8	0:31 0.2	6:30 18.1	12:48 0.9	18:50 18.4	S	8	1:15 2.3	7:08 16.5	13:30 8.0	19:26 16.0	
M	9	0:10 -0.3	6:08 18.4	12:28 0.5	18:28 18.9	E Th	9	1:10 1.1	7:10 17.2	13:27 1.9	19:32 17.3	S	9	1:45 3.7	7:42 15.3	14:02 7.3	20:04 14.7	
Tu	10	0:54 0.4	6:55 17.6	13:12 1.4	19:18 18.0	F	10	1:50 2.3	7:50 16.2	14:06 8.2	20:14 15.9	A M	10	2:18 4.8	8:25 14.2	14:36 5.4	20:48 13.5	
W	11	1:40 1.4	7:45 16.7	13:57 2.5	20:08 16.8	S	11	2:30 3.7	8:36 15.1	14:46 4.5	21:00 14.6	○	Tu	2:58 5.9	9:16 13.1	15:28 6.4	21:50 12.6	
E Th	12	2:25 2.6	8:35 15.7	14:45 3.7	21:01 15.7	○	S 12	3:12 4.9	9:25 14.0	15:32 5.6	21:52 18.6	N W	12	3:55 6.9	10:30 12.6	16:42 7.1	23:13 12.4	
○	F 13	3:15 3.7	9:30 14.9	15:38 4.7	21:58 14.8	A M	13	4:00 5.9	10:24 13.3	16:30 6.5	22:56 13.0	Th	13	5:22 7.2	11:52 12.9	18:13 6.9		
S	14	4:07 4.7	10:28 14.1	16:35 5.6	22:58 14.1	Tu	14	5:04 6.7	11:31 13.1	17:47 6.9		F	14	0:25 6.5	6:54 6.4	12:55 13.9	19:29 5.6	
S	15	5:07 5.5	11:27 13.9	17:40 6.1	23:55 13.8	W	15	0:01 13.0	6:21 6.6	12:33 13.5	19:05 6.4	S	15	1:25 14.2	8:00 4.9	13:50 15.3	20:25 8.9	
A M	16	6:12 5.8	12:22 18.9	18:50 6.0		N Th	16	1:00 13.5	7:32 5.7	13:30 14.3	20:06 5.2	S	16	2:16 15.8	8:50 3.1	14:37 16.9	21:12 2.1	
Tu	17	0:49 13.9	7:16 5.5	13:15 14.3	19:51 5.3	F	17	1:55 14.6	8:30 4.5	14:20 15.5	20:55 3.7	M	17	3:02 17.4	9:31 1.5	15:21 18.2	21:54 0.5	
W	18	1:38 14.3	8:11 4.7	14:02 15.1	20:40 4.3	S	18	2:42 15.7	9:16 3.0	15:05 16.8	21:39 2.3	●	Tu	3:44 18.9	10:10 0.2	16:02 19.6	22:32 -0.6	
Th	19	2:25 15.0	8:58 3.8	14:46 16.0	21:24 3.4	S	19	3:26 17.0	9:57 1.8	15:46 17.9	22:18 1.1	E W	19	4:25 19.9	10:49 -0.7	16:44 20.6	23:10 -1.2	
N F	20	3:08 15.9	9:40 2.8	15:30 16.8	22:02 2.4	●	M 20	4:07 18.1	10:35 0.9	16:28 19.0	22:55 0.2	Th	20	5:01 20.3	11:26 -0.9	17:20 20.7	23:48 -1.0	
●	S 21	3:48 16.8	10:20 2.1	16:08 17.6	22:40 1.7	Tu	21	4:48 18.8	11:14 0.3	17:05 19.6	23:34 -0.2	F	21	5:40 20.1	12:06 -0.6	18:01 20.2		
S	22	4:26 17.4	10:56 1.6	16:46 18.2	23:17 1.2	W	22	5:24 19.2	11:50 0.1	17:42 19.8		P S	22	0:27 -0.4	6:24 19.4	12:45 0.2	18:48 19.1	
M	23	5:05 17.8	11:34 1.5	17:22 18.5	23:55 1.0	E Th	23	0:12 -0.2	6:04 19.1	12:26 0.4	18:25 19.4	S	23	1:10 0.8	7:08 18.2	13:28 1.3	19:35 17.7	
Tu	24	5:43 17.9	12:10 1.6	18:04 18.4		F	24	0:50 0.3	6:45 18.5	13:06 1.0	19:08 18.5	M	24	1:54 2.2	8:00 16.7	14:18 2.8	20:31 16.0	
W	25	0:34 1.0	6:25 17.7	12:48 1.8	18:45 18.0	S	25	1:30 1.2	7:31 17.5	13:46 2.0	19:57 17.3	○	Tu	2:47 3.7	9:00 15.3	15:18 4.2	21:44 14.6	
Th	26	1:10 1.5	7:10 17.3	13:25 2.3	19:30 17.3	S	26	2:15 2.4	8:21 16.4	14:35 3.1	20:51 16.0	W	26	3:55 5.1	10:20 14.4	16:36 5.1	23:10 14.0	
E F	27	1:52 2.1	7:56 16.5	14:08 3.0	20:20 16.5	○	M 27	3:06 3.6	9:21 15.2	15:32 4.3	22:00 14.8	Th	27	5:24 5.8	11:45 14.4	18:10 5.2		
○	S 28	2:38 2.9	8:50 15.8	14:57 3.7	21:17 15.7	Tu	28	4:13 4.9	10:36 14.4	16:50 5.2	23:21 14.3	F	28	0:30 14.4	6:52 5.1	13:00 15.1	19:30 4.2	
S	29	3:32 3.7	9:50 15.0	15:57 4.5	22:24 15.0	S	W 29	5:36 5.5	11:56 14.5	18:20 5.2		S	29	1:36 15.3	8:00 3.7	13:59 16.2	20:30 2.7	
M	30	4:38 4.5	11:01 14.7	17:10 5.0	23:36 14.9	Th	30	0:38 14.6	7:04 4.9	13:07 15.2	19:41 4.1	S	30	2:28 16.4	8:52 2.2	14:47 17.4	21:15 1.3	
Tu	31	5:55 4.9	12:11 15.0	18:34 4.7		F	31	1:45 15.4	8:12 3.5	14:08 16.4	20:42 2.5							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the French Charts for this region, and which is 9.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E	M	1	3:11 17.5	9:34 0.9	15:29 18.5	21:56 0.3	○	Th	1	4:00 18.3	10:25 0.6	16:16 18.3	22:40 0.7	A	S	1	4:06 17.7	10:36 1.6	16:25 17.2	22:50 1.8												
	Tu	2	3:50 18.4	10:14 0.1	16:06 19.1	22:32 -0.1		F	2	4:30 18.4	10:56 0.8	16:48 18.0	23:12 1.2	S	2	4:40 17.7	11:10 1.8	16:55 17.0	23:22 2.1													
	W	3	4:24 18.9	10:48 -0.2	16:42 19.2	23:05 0.0		S	3	5:05 18.1	11:30 1.4	17:18 17.5	23:43 1.9	N	M	3	5:10 17.6	11:40 2.2	17:24 16.8	23:54 2.7												
	Th	4	4:58 18.8	11:20 0.2	17:16 18.8	23:38 0.6	A	S	4	5:30 17.6	12:01 2.2	17:44 16.9		Tu	4	5:40 17.1	12:13 2.7	17:57 16.4														
	F	5	5:29 18.4	11:54 0.9	17:43 18.0		M	5	0:12 2.8	6:00 16.8	12:30 3.0	18:16 16.0		W	5	0:25 3.3	6:15 16.5	12:45 3.3	18:33 15.8													
A	S	6	0:09 1.5	5:58 17.6	12:25 1.9	18:15 17.1	N	Tu	6	0:41 3.7	6:33 16.0	13:00 4.0	18:50 15.2	Th	6	0:57 4.0	6:55 15.8	13:20 3.9	19:17 15.2													
	S	7	0:40 2.6	6:28 16.7	12:55 3.1	18:46 16.0		W	7	1:10 4.7	7:10 15.0	13:34 4.8	19:31 14.3	F	7	1:34 4.6	7:38 15.1	14:01 4.4	20:08 14.5													
	M	8	1:06 3.8	7:01 15.6	13:24 4.3	19:18 14.8		Th	8	1:50 5.4	7:55 14.1	14:20 5.4	20:30 13.5	S	8	2:19 5.1	8:32 14.4	14:52 4.8	21:10 14.0													
	Tu	9	1:35 4.9	7:40 14.5	13:57 5.2	20:00 13.8	☾	F	9	2:40 6.1	9:00 13.3	15:18 6.0	21:45 13.0	☾	S	9	3:15 5.5	9:40 14.1	15:55 5.1	22:21 14.0												
	W	10	2:14 5.8	8:26 13.4	14:45 6.1	21:00 12.8		S	10	3:50 6.6	10:20 13.2	16:37 6.1	23:08 13.4	E	M	10	4:24 5.7	10:52 14.4	17:09 5.0	23:35 14.6												
N	Th	11	3:10 6.7	9:40 12.6	15:54 6.8	22:25 12.4		S	11	5:15 6.4	11:40 14.0	17:56 5.4		Tu	11	5:42 6.3	12:00 15.1	18:20 4.3														
	F	12	4:33 7.2	11:09 12.8	17:25 6.7	23:52 13.0		M	12	0:16 14.5	6:33 5.2	12:40 15.3	19:06 4.0	W	12	0:35 15.5	6:54 4.2	13:00 16.2	19:27 3.1													
	S	13	6:08 6.6	12:20 13.8	18:48 5.6		E	Tu	13	1:10 16.0	7:35 3.6	13:32 16.9	20:01 2.3	Th	13	1:30 16.8	7:57 2.8	13:55 17.4	20:25 1.8													
	S	14	0:58 14.4	7:20 5.1	13:19 15.3	19:48 3.8		W	14	2:00 17.5	8:27 1.9	14:22 18.3	20:51 0.8	F	14	2:20 18.1	8:50 1.3	14:47 18.5	21:17 0.6													
	M	15	1:45 16.0	8:15 3.2	14:06 17.0	20:38 2.0		Th	15	2:47 19.0	9:15 0.4	15:10 19.4	21:38 -0.3	P	S	15	3:11 19.2	9:42 0.1	15:37 19.4	22:06 -0.3												
E	Tu	16	2:31 17.7	9:00 1.4	14:51 18.7	21:22 0.3	●	F	16	3:32 20.1	10:00 -0.7	15:55 20.4	22:22 -1.0	●	S	16	4:00 20.0	10:30 -0.8	16:25 19.9	22:52 -0.7												
	W	17	3:15 19.3	9:42 0.0	15:34 19.9	22:05 -0.8	P	S	17	4:16 20.7	10:44 -1.2	16:39 20.5	23:06 -1.0	S	M	17	4:47 20.4	11:15 -1.0	17:12 19.7	23:36 -0.8												
	Th	18	3:55 20.4	10:23 -1.0	16:16 20.9	22:45 -1.4		S	18	5:00 20.6	11:28 -1.2	17:22 20.1	23:50 -0.5	Tu	18	5:31 20.2	12:02 -0.8	18:00 19.1														
	F	19	4:37 20.8	11:04 -1.3	16:56 21.0	23:25 -1.3	S	M	19	5:44 20.1	12:15 -0.6	18:11 19.2		W	19	0:22 0.1	6:20 19.5	12:49 -0.1	18:50 18.2													
	S	20	5:18 20.6	11:44 -1.0	17:40 20.4			Tu	20	0:35 0.4	6:32 19.0	13:02 0.5	19:04 17.9	Th	20	1:09 1.0	7:13 18.4	13:38 1.0	19:45 17.5													
S	S	21	0:06 -0.5	6:00 19.8	12:29 -0.3	18:27 19.2		W	21	1:25 1.7	7:27 17.6	13:54 1.8	20:02 16.4	F	21	1:58 2.2	8:10 17.1	14:30 2.3	20:43 16.0													
	M	22	0:50 0.6	6:49 18.6	13:14 1.0	19:18 17.7		Th	22	2:18 3.1	8:30 16.2	14:53 3.1	21:10 15.3	D	S	22	2:53 3.5	9:10 16.0	15:28 3.4	21:47 15.1												
	Tu	23	1:38 2.2	7:41 17.0	14:04 2.5	20:19 16.0	D	F	23	3:22 4.4	9:42 15.4	16:00 4.1	22:30 14.6	E	S	23	3:54 4.5	10:18 15.2	16:30 4.3	22:58 14.6												
	W	24	2:33 3.7	8:45 15.5	15:09 3.9	21:31 14.8		S	24	4:35 5.1	11:00 15.0	17:16 4.5	23:40 14.6	M	24	5:00 5.2	11:23 14.8	17:38 4.9	23:55 14.5													
	Th	25	3:43 5.0	10:05 14.7	16:25 4.7	22:57 14.2		S	25	5:53 5.0	12:09 15.2	18:30 4.3		Tu	25	6:15 5.3	12:25 14.6	18:47 4.9														
E	F	26	5:07 5.5	11:30 14.7	17:51 4.8		E	M	26	0:40 15.0	7:02 4.4	13:06 15.5	19:30 3.7	W	26	0:53 14.6	7:20 4.9	13:19 14.8	19:45 4.4													
	S	27	0:14 14.5	6:32 5.0	12:40 15.2	19:08 4.1		Tu	27	1:32 15.6	7:59 3.6	13:55 16.0	20:20 2.9	Th	27	1:42 15.1	8:16 4.2	14:07 15.1	20:54 3.7													
	S	28	1:15 15.3	7:39 3.8	13:36 16.1	20:06 2.9		W	28	2:15 16.3	8:45 2.7	14:38 16.5	21:03 2.3	A	F	28	2:26 15.7	9:02 3.5	14:49 15.6	21:15 3.9												
	M	29	2:05 16.2	8:29 2.6	14:24 17.0	20:51 1.8		Th	29	2:55 16.9	9:25 2.1	15:17 17.0	21:40 1.8	S	29	3:07 16.4	9:40 2.8	15:27 16.1	21:55 2.5													
	Tu	30	2:45 17.1	9:11 1.5	15:05 17.7	21:30 1.1	○	F	30	3:32 17.4	10:03 1.7	15:50 17.2	22:17 1.7	○	S	30	3:45 17.0	10:18 2.3	16:02 16.7	22:30 2.1												
	W	31	3:24 17.9	9:50 0.9	15:42 18.2	22:07 0.7								N	M	31	4:20 17.4	10:50 2.0	16:38 16.9	23:05 2.0												

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the French Charts for this region, and which is 9.7 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.							FEBRUARY.							MARCH.								
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.						W.	Mo.						W.	Mo.						
E D A	M	1	1:18 19.6	8:58 3.0	13:37 19.2	21:21 2.8	D A	Th	1	1:57 18.8	9:41 4.7	14:18 18.1	22:05 4.7	A	Th	1	0:32 21.0	8:22 2.7	12:45 20.5	20:42 3.0		
	Tu	2	2:07 18.7	9:45 4.4	14:29 18.0	22:09 4.1		F	2	2:50 17.8	10:26 5.8	15:15 17.0	22:53 5.8		F	2	1:05 20.1	8:58 3.8	13:22 19.3	21:18 4.2		
	W	3	3:05 17.5	10:32 5.5	15:29 16.9	22:59 5.2		S	3	3:54 16.9	11:20 6.5	16:28 16.1	23:50 6.6		D	S	3	1:45 19.0	9:38 4.8	14:09 18.2	22:02 5.3	
	Th	4	4:08 16.8	11:25 6.2	16:37 16.0	23:55 5.9		S	4	5:07 16.5	12:25 6.7	17:42 16.0			S	4	2:40 18.0	10:28 5.8	15:15 17.0	22:57 6.3		
	F	5	5:10 16.4	12:26 6.3	17:38 16.0			M	5	1:00 6.6	6:13 16.8	13:35 6.0	18:46 16.7		N	M	5	3:58 17.0	11:31 6.4	16:45 16.3		
A	S	6	0:55 6.0	6:06 16.7	13:28 5.9	18:35 16.5	N	Tu	6	2:09 5.8	7:10 17.9	14:45 4.7	19:35 18.0	Tu	6	0:05 6.8	5:24 16.7	12:47 6.3	18:05 16.5			
	S	7	1:55 5.6	6:58 17.5	14:29 4.9	19:20 17.5		W	7	3:12 4.5	7:55 19.3	15:41 8.0	20:20 19.5		W	7	1:24 6.3	6:35 17.6	14:04 5.0	19:07 17.9		
	M	8	2:55 4.8	7:39 18.6	15:21 3.8	20:02 18.6		Th	8	4:04 3.0	8:38 20.8	16:27 1.5	21:00 21.1		Th	8	2:38 4.8	7:28 19.2	15:10 8.2	19:56 19.7		
	Tu	9	3:48 3.8	8:20 19.9	16:07 2.7	20:42 19.8		O	F	9	4:47 1.7	9:19 22.2	17:11 0.4		21:41 22.4	F	9	3:37 2.9	8:15 20.9	16:03 1.3	20:40 21.5	
	W	10	4:26 2.8	8:58 20.9	16:48 1.7	21:20 20.9		S	10	5:27 0.8	9:57 23.3	17:48 -0.4	22:20 23.3		O	S	10	4:25 1.1	8:58 22.6	16:47 -0.3	21:20 23.1	
O	Th	11	5:06 2.2	9:35 22.0	17:27 1.0	21:57 21.8	E	S	11	6:05 0.2	10:35 23.8	18:27 -0.7	22:58 23.7	E	S	11	5:06 -0.2	9:39 23.9	17:28 -1.3	22:00 24.1		
	F	12	5:45 1.7	10:11 22.5	18:03 0.6	22:34 22.4		M	12	6:43 0.0	11:14 24.0	19:07 -0.6	23:35 23.7		M	12	5:45 -0.9	10:18 24.5	18:07 -1.6	22:38 24.6		
	S	13	6:20 1.4	10:49 23.0	18:40 0.4	23:11 22.8		P	Tu	13	7:23 0.3	11:52 23.6	19:45 -0.1			P	Tu	13	6:25 -1.1	10:56 24.6	18:47 -1.4	23:17 24.4
	S	14	7:00 1.4	11:26 23.0	19:21 0.5	23:50 22.6		W	14	0:14 23.1	8:06 0.9	12:31 22.6	20:29 0.9		W	14	7:05 -0.7	11:34 24.1	19:27 -0.6	23:56 23.7		
	M	15	7:40 1.5	12:06 22.6	20:04 0.9			Th	15	0:57 22.0	8:48 2.0	13:18 21.2	21:12 2.2		Th	15	7:47 0.2	12:13 22.8	20:10 0.7			
E C	Tu	16	0:30 21.9	8:23 2.0	12:49 21.8	20:47 1.6	C	F	16	1:47 20.6	9:37 3.3	14:15 19.5	22:05 3.8	F	16	0:36 22.2	8:31 1.6	12:59 21.1	20:55 2.3			
	W	17	1:18 21.3	9:09 2.7	13:40 20.6	21:35 2.5		S	17	2:53 18.9	10:35 4.8	15:32 17.7	23:10 5.3		C	S	17	1:25 20.5	9:20 3.2	13:55 19.3	21:48 4.2	
	Th	18	2:14 20.2	10:00 3.7	14:41 19.4	22:30 3.6		S	18	4:20 17.4	11:48 5.8	17:05 16.5			S	S	18	2:30 18.5	10:18 4.9	15:13 17.3	22:52 5.8	
	F	19	3:23 19.1	11:00 4.6	16:00 18.2	23:35 4.5		N	M	19	0:30 6.0	5:45 16.9	13:13 5.4		18:27 16.8	M	19	4:00 16.8	11:32 5.8	16:53 15.9		
	S	20	4:46 18.2	12:12 5.1	17:24 17.6			Tu	20	1:59 5.1	6:59 17.8	14:40 3.6	19:30 18.2		Tu	20	0:16 6.4	5:38 16.0	13:01 5.6	18:15 16.3		
S ●	S	21	0:50 4.9	6:02 18.3	13:30 4.5	18:38 18.1	W	W	21	3:16 8.2	7:55 19.2	15:46 1.7	20:22 19.7	W	21	1:49 5.4	6:46 17.0	14:30 3.8	19:28 17.8			
	M	22	2:10 4.1	7:10 19.2	14:50 8.0	19:39 19.2		Th	22	4:14 1.3	8:42 20.7	16:37 0.1	21:07 21.0		Th	22	3:06 3.5	7:40 18.5	15:32 2.0	20:07 19.3		
	Tu	23	3:25 2.5	8:03 20.4	15:53 1.2	20:32 20.5		●	F	23	5:00 0.0	9:27 21.7	17:18 -1.0		21:48 21.9	F	23	3:58 1.8	8:25 20.0	16:17 0.5	22:17 20.7	
	W	24	4:20 1.0	8:53 21.6	16:48 -0.2	21:20 21.6		S	24	5:37 -0.6	10:03 22.4	17:55 -1.3	22:26 22.4		S	24	4:39 0.5	9:06 21.1	16:57 -0.5	21:26 21.1		
	Th	25	5:10 0.0	9:40 22.4	17:33 -1.2	22:05 22.3		S	25	6:13 -0.5	10:40 22.6	18:31 -1.1	23:00 22.4		●	S	25	5:14 -0.2	9:43 21.9	17:32 -0.9	22:00 22.0	
E	F	26	5:53 -0.5	10:23 22.7	18:15 -1.4	22:46 22.4	E	M	26	6:48 0.0	11:14 22.4	19:05 -0.3	23:33 22.2	M	26	5:48 -0.3	10:15 22.2	18:05 -0.5	22:32 22.3			
	S	27	6:35 -0.3	11:04 22.6	18:53 -1.0	23:25 22.1		Tu	27	7:19 0.9	11:45 22.0	19:35 0.7			Tu	27	6:18 0.2	10:45 22.3	18:33 0.2	23:00 22.2		
	S	28	7:13 0.3	11:40 22.1	19:31 -0.2			W	28	0:02 21.7	7:50 1.8	12:14 21.3	20:06 1.8		W	28	6:47 0.9	11:13 22.0	19:08 1.1	23:27 21.9		
	M	29	0:08 21.6	7:50 1.2	12:17 21.4	20:09 0.9									A	Th	29	7:17 1.7	11:42 21.7	19:33 2.0	23:56 21.6	
	Tu	30	0:38 20.9	8:25 2.3	12:53 20.4	20:45 2.1									F	30	7:48 2.4	12:05 21.1	20:06 2.4			
W	31	1:16 19.9	9:01 3.5	13:31 19.3	21:23 3.4								S	31	0:27 20.8	8:22 3.2	12:43 20.2	20:42 3.8				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the French Charts for this region, and which is 11.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil; for the meridian 2° 20' E.; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

										JUNE.									
										Day of—		Time and Height of High and Low Water.							
										W.	Mo.								
										Moon.									
										of High and	ter								
N	S	1	1:02	9:02	13:26	21:25	1:22	9:25	13:56	21:50	F	1	3:10	10:59	15:57	23:30			
			20.0	4.1	19.2	4.8	19.6	4.0	18.9	5.0			19.0	3.8	19.0	4.5			
D	M	2	1:50	9:52	14:25	22:19	2:23	10:22	15:12	22:55	E	S	2	4:30	11:59	17:10			
			18.9	4.9	18.0	5.7	18.7	4.6	18.1	5.5			18.9	3.7	19.4				
	Tu	3	2:59	10:52	15:49	23:26	3:50	11:30	16:38			S	3	0:38	5:42	13:10	14:16		
			17.8	5.6	17.1	6.3	18.1	4.8	18.0				4.1	19.4	3.2	20.3			
	W	4	4:34	12:05	17:20		0:06	5:13	12:42	17:52		M	4	1:43	6:46	14:15	19:13		
			17.2	5.8	17.0		5.3	18.3	4.5	18.8			3.1	20.4	2.2	21.5			
	Th	5	0:43	5:55	13:22	18:32	1:17	6:22	13:53	19:58		Tu	5	2:50	7:40	15:18	20:55		
			6.1	17.7	4.9	18.2	4.4	19.4	3.0	20.4			1.7	21.6	1.1	22.6			
	F	6	1:57	6:59	14:32	19:27	2:22	7:17	14:52	19:42	P	W	6	3:50	8:30	16:15	20:53		
			4.7	19.2	3.1	20.1	2.7	20.9	1.5	22.0			0.4	22.6	0.1	23.5			
	S	7	3:02	7:47	15:30	20:13	3:22	8:06	15:48	20:28	C	Th	7	4:42	9:20	17:07	21:40		
			2.7	21.0	1.2	22.0	1.0	22.5	0.1	23.5			-0.7	23.2	-0.6	23.9			
E	S	8	3:55	8:33	16:18	20:55	4:13	8:52	16:37	21:14	S	F	8	5:33	10:07	17:56	21:25		
			0.9	22.8	-0.5	23.7	-0.5	23.7	-0.9	24.4			-1.2	23.4	-0.5	23.6			
O	M	9	4:41	9:17	17:08	21:37	5:00	9:37	17:24	21:58		S	9	6:20	10:55	18:45	23:15		
			-0.7	24.2	-1.5	24.7	-1.3	24.3	-1.3	24.6			-1.0	22.9	-0.1	23.0			
P	Tu	10	5:23	9:58	17:45	22:18	5:47	10:22	18:10	22:42		S	10	7:08	11:42	19:32			
			-1.4	24.6	-1.8	25.0	-1.4	24.2	-1.0	24.3			-0.5	22.0	0.8				
	W	11	6:05	10:36	18:27	22:59	6:32	11:07	18:56	23:27		M	11	0:02	7:55	12:30	20:21		
			-1.6	24.8	-1.5	24.6	-1.0	23.6	-0.2	23.4			21.9	0.5	20.9	1.9			
	Th	12	6:47	11:20	19:10	23:40	7:18	11:52	19:44			Tu	12	0:50	8:45	13:27	21:10		
			-1.1	24.1	-0.6	23.7	-0.2	22.4	1.0				20.4	1.6	19.5	3.0			
	F	13	7:21	12:02	19:56		0:12	8:06	12:40	20:33	C	W	13	1:50	9:35	14:30	22:02		
			-0.1	22.7	0.6		21.9	1.1	20.7	2.4			19.0	2.7	18.2	4.2			
S	S	14	0:23	8:18	12:48	20:43	1:08	8:59	13:40	21:28		Th	14	2:55	10:30	15:25	23:00		
			22.2	1.3	21.0	2.6	20.0	2.4	19.0	3.9			17.6	3.8	17.2	5.0			
C	S	15	1:13	9:08	13:47	21:38	2:08	9:57	14:36	22:27	E	F	15	4:05	11:23	16:42			
			20.3	3.0	19.0	4.3	18.3	3.8	17.3	5.1			16.7	4.6	16.8				
	M	16	2:18	10:08	15:07	22:42	3:28	10:59	16:16	23:31		S	16	0:00	5:08	12:29	17:40		
			18.2	4.5	17.1	5.7	18.8	4.7	16.4	5.7			5.4	16.4	4.9	17.6			
	Tu	17	3:48	11:19	16:40		4:47	12:10	17:25			S	17	1:03	6:05	13:32	18:30		
			16.5	5.6	15.8		16.2	4.9	16.7				5.3	16.6	4.7	17.4			
	W	18	0:01	5:17	12:42	17:56	0:50	5:51	13:20	18:22	A	M	18	2:02	6:56	14:27	19:16		
			6.2	15.8	5.3	16.4	5.3	16.6	4.4	17.6			4.7	17.2	4.3	18.0			
	Th	19	1:28	6:24	14:03	18:57	1:57	6:45	14:22	19:10		Tu	19	2:57	7:36	15:18	19:56		
			5.2	16.8	4.0	17.7	4.4	17.5	3.5	18.4			4.0	17.8	3.8	18.8			
	F	20	2:39	7:18	15:04	19:42	2:52	7:30	15:12	19:50		W	20	3:43	8:15	16:02	20:33		
			3.8	18.1	2.4	19.0	3.4	18.3	2.6	19.1			3.2	18.6	3.3	19.7			
E	S	21	3:31	8:01		20:22	3:37	8:09	15:55	20:26	●	Th	21	4:20	8:52	16:38	21:07		
			2.2	19.3	1.3	20.1	2.5	19.1	2.1	19.8			2.8	19.3	3.0	20.3			
	S	22	4:12	8:40	16:30	20:58	4:16	8:55	16:33	21:01	N	F	22	4:56	9:27	17:12	21:40		
			1.1	20.3	0.5	20.8	2.0	19.7	1.9	20.4			2.4	20.1	2.9	21.0			
●	M	23	4:48	9:15	17:03	21:31	4:50	9:18	17:05	21:38		S	23	5:31	10:00	17:46	22:15		
			0.7	20.9	0.2	21.4	1.8	20.3	2.0	20.9			2.1	20.7	2.8	21.4			
	Tu	24	5:20	9:46	17:35	22:00	5:21	9:50	17:36	22:03		S	24	6:05	10:35	18:21	22:50		
			0.6	21.4	0.6	21.7	1.8	20.7	2.2	21.3			1.9	21.0	2.7	21.8			
A	W	25	5:48	10:15	18:03	22:30	5:52	10:21	18:07	22:32		M	25	6:40	11:10	18:58	23:14		
			1.0	21.5	1.2	21.8	1.9	21.0	2.5	21.5			1.8	21.4	2.7	21.8			
	Th	26	6:17	10:45	18:33	22:58	6:23	10:52	18:39	23:05		Tu	26	7:19	11:47	19:40			
			1.4	21.6	1.3	21.9	2.0	21.1	2.8	21.7			1.8	21.4	2.7				
	F	27	6:46	11:14	19:03	23:27	6:58	11:25	19:16	23:38		W	27	8:02	12:27	20:31			
			1.8	21.6	2.4	21.7	2.1	21.2	3.1	21.5			21.8	1.9	21.3	2.5			
	S	28	7:18	11:43	19:37	23:58	7:35	12:00	19:55			Th	28	0:45	8:45	13:15	21:08		
			2.2	21.8	2.9	21.3	2.4	21.0	3.3				21.3	2.2	20.9	3.1			
N	S	29	7:55	12:17	20:14		8:15	12:43	20:38		E	F	29	1:35	9:35	14:12	21:38		
			2.7	20.8	3.6		21.1	2.8	20.5	3.7			20.6	2.5	20.3	3.6			
	M	30	8:23	12:37	20:58		1:01	9:05	13:35	21:29		S	30	2:37	10:25	15:17	22:56		
			20.6	3.4	19.9	4.4	20.4	3.2	19.8	4.2			19.8	3.0	19.8	4.0			
	Th	31					1:59	9:58	14:41	22:27									
							19.6	3.5	19.3	4.5									

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the French Charts for this region, and which is 11.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus ( - ) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil for the meridian 2° 20' E. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon. All hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3 47 p.m.  
 ●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
P	S 1	3:50	11:26	16:32	19.0	O	W 1	0:45	5:55	13:23	18:30	O	S 1	3:10	7:55	15:40	20:15
	M 2	0:00	5:17	11:06	4.2		Th 2	2:04	7:05	14:40	19:34		S 2	4:06	8:40	16:32	21:00
	Tu 3	1:10	6:17	13:43	8.8		F 3	3:17	8:03	15:50	20:25		M 3	4:54	9:25	17:14	21:48
	W 4	2:23	7:20	14:55	12.7		S 4	4:17	8:54	16:44	21:16		Tu 4	5:34	10:05	17:53	22:22
	Th 5	3:29	8:13	15:58	1.8		S 5	5:08	9:42	17:31	22:00		W 5	6:12	10:42	18:30	23:00
S	F 6	4:28	9:05	16:54	-0.2	M	6	5:54	10:26	18:15	22:45	Th	6	6:48	11:17	19:04	23:32
	S 7	5:20	9:55	17:44	-1.0		Tu 7	6:37	11:08	18:56	23:25		F 7	7:24	11:50	19:39	24:00
	S 8	6:09	10:42	18:32	-1.5		W 8	7:17	11:48	19:35	24:00		S 8	8:05	12:32	20:14	24:30
	M 9	6:55	11:28	19:18	-1.1		Th 9	8:04	12:26	20:14	24:30		S 9	8:37	13:02	20:49	25:00
	Tu 10	7:40	12:12	20:02	-0.4	F	10	8:40	13:05	20:50	25:00	A	M 10	9:14	13:35	21:30	25:30
E	W 11	8:25	13:00	20:45	20.8		S 11	9:11	13:48	21:30	25:30		Tu 11	9:49	14:05	22:00	26:00
	Th 12	9:08	13:50	21:30	19.6		S 12	9:54	14:38	22:17	26:00		W 12	10:19	14:35	22:30	26:30
	F 13	9:52	14:45	22:17	18.3		M 13	10:40	15:30	23:06	26:30		Th 13	10:50	15:05	23:00	27:00
	S 14	10:40	15:45	23:06	17.2		Tu 14	11:35	16:30	23:50	27:00		F 14	11:21	15:35	23:30	27:30
A	S 15	11:34	16:48	23:50	16.2	N	W 15	12:24	17:24	24:30	27:30	S	15	12:02	16:05	24:00	28:00
	M 16	12:32	17:44	24:30	6.0		Th 16	13:15	18:18	25:00	28:00		S 16	12:50	16:35	24:30	28:30
	Tu 17	13:32	18:40	25:00	5.9		F 17	14:08	19:10	25:30	28:30		M 17	13:35	17:05	25:00	29:00
	W 18	14:35	19:24	25:30	5.2		S 18	15:00	20:00	26:00	29:00		W 18	14:15	17:35	25:30	29:30
	Th 19	15:27	20:05	26:00	4.2	●	S 19	15:44	20:44	26:30	29:30	E	W 19	15:00	18:05	26:00	30:00
N	F 20	16:13	20:45	26:30	3.2		M 20	16:30	21:20	27:00	30:00		Th 20	15:42	18:35	26:30	30:30
	S 21	16:52	21:21	27:00	2.3		Tu 21	17:10	21:50	27:30	30:30		F 21	16:21	19:05	27:00	31:00
	S 22	17:28	21:58	27:30	1.7		W 22	17:50	22:30	28:00	31:00		S 22	17:00	19:35	27:30	31:30
	M 23	18:05	22:34	28:00	1.3		Th 23	18:30	23:10	28:30	31:30		S 23	17:45	20:05	28:00	32:00
D	Tu 24	18:42	23:10	28:30	6:25	P	F 24	19:10	23:50	29:00	32:00	M	24	18:30	20:35	28:30	32:30
	W 25	19:21	23:48	29:00	1.0		S 25	19:40	24:30	29:30	32:30		Tu 25	19:15	21:05	29:00	33:00
	Th 26	20:00	24:20	29:30	0.9		S 26	20:10	25:10	30:00	33:00		W 26	20:00	21:35	29:30	33:30
	F 27	20:45	25:00	30:00	0:27		M 27	20:40	25:40	30:30	33:30		Th 27	20:45	22:05	30:00	34:00
	D	S 28	21:34	25:40	30:30	22.0	P	Tu 28	21:10	26:10	31:00	34:00	F	28	21:30	22:35	30:30
S 29		22:26	26:20	31:00	21.2	W 29		21:40	26:40	31:30	34:30	S 29		22:15	23:05	31:00	35:00
M 30		23:10	26:55	31:30	18.9	Th 30		22:10	27:10	32:00	35:00	S 30		23:00	23:35	31:30	35:30
Tu 31		23:50	27:16	32:00	4:35	F 31		22:40	27:40	32:30	35:30						
		18.0	4.7	18.3	18.0		4.1	17.8	3.7	18.8							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the French Charts for this region, and which is 11.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E	M	1	3:50 0.4	8:24 20.8	16:18 0.3	20:43 21.2	○	Th	1	4:45 -0.2	9:14 21.6	17:08 0.0	21:31 21.4	A	S	1	4:55 1.5	9:22 20.8	17:18 1.1	21:39 20.5												
	Tu	2	4:34 -0.9	9:03 21.8	16:54 -0.3	21:22 22.1		F	2	5:20 0.0	9:46 21.7	17:35 0.4	22:02 21.5	S	2	5:28 1.8	9:52 21.0	17:44 1.5	22:10 20.7													
	W	3	5:11 -1.3	9:40 22.4	17:30 -0.9	21:56 22.4		S	3	5:50 0.8	10:15 21.8	18:05 1.0	22:32 21.4	N	M	3	5:57 2.4	10:22 21.2	18:13 1.9	22:40 20.9												
	Th	4	5:46 -1.1	10:14 22.4	18:00 -0.4	22:23 22.3	A	S	4	6:20 1.7	10:45 21.6	18:35 1.8	23:02 21.1	Tu	4	6:28 2.8	10:52 21.4	18:45 2.2	23:12 20.9													
	F	5	6:20 -0.3	10:46 22.2	18:32 0.5	23:00 21.9		M	5	6:50 2.5	11:14 21.4	19:07 2.5	23:32 20.8	W	5	7:00 3.1	11:24 21.3	19:20 2.5	23:46 20.8													
A	S	6	6:50 0.9	11:15 21.8	19:04 1.6	23:30 21.3	N	Tu	6	7:24 3.4	11:44 20.8	19:42 3.1		Th	6	7:38 3.5	11:59 21.0	20:00 2.9														
	S	7	7:21 2.1	11:45 21.2	19:37 2.6			W	7	0:05 20.2	8:00 4.1	12:20 20.1	20:22 3.8	F	7	0:23 20.4	8:19 3.9	12:39 20.2	20:44 3.3													
	M	8	0:00 20.6	7:55 3.3	12:15 20.3	20:10 3.6		Th	8	0:44 19.5	8:42 4.8	13:02 19.3	21:08 4.5	S	8	1:10 19.8	9:06 4.3	13:31 19.6	21:34 3.7													
	Tu	9	0:33 19.5	8:32 4.3	12:50 19.4	20:51 4.5	○	F	9	1:36 18.6	9:33 5.5	14:01 18.3	22:08 5.0	○	S	9	2:09 19.3	10:00 4.6	14:35 19.0	22:30 4.0												
	W	10	1:14 18.5	9:13 5.4	13:37 18.3	21:39 5.3		S	10	2:47 17.7	10:32 5.9	15:22 17.5	23:07 5.2	E	M	10	3:20 18.7	11:00 4.8	15:54 18.5	23:32 4.1												
N	Th	11	2:10 17.4	10:05 6.3	14:42 17.1	22:37 6.1		S	11	4:15 17.4	11:40 5.8	16:49 17.6		Tu	11	4:38 18.7	12:05 4.5	17:10 18.6														
	F	12	3:33 16.5	11:10 6.8	16:17 16.5	23:47 6.1		M	12	0:15 4.7	5:27 18.1	12:50 4.9	17:58 18.5	W	12	0:39 8.7	5:47 19.4	13:12 3.7	18:18 19.5													
	S	13	5:08 16.4	12:23 6.4	17:37 16.9		E	Tu	13	1:22 3.6	6:28 19.6	13:55 3.3	18:54 20.1	Th	13	1:45 2.9	6:48 20.6	14:19 2.4	19:17 20.7													
	S	14	1:00 5.3	6:12 17.5	13:35 5.1	18:39 18.3		W	14	2:25 2.1	7:18 21.3	14:55 1.7	19:42 21.7	F	14	2:50 1.8	7:40 21.9	15:20 0.9	20:07 22.0													
	M	15	2:05 3.7	7:05 19.3	14:39 3.2	19:27 20.2		Th	15	3:20 0.7	8:05 22.8	15:47 0.1	20:28 23.0	P	S	15	3:48 0.5	8:30 23.0	16:18 -0.5	20:56 22.9												
E	Tu	16	3:04 1.7	7:50 21.2	15:30 1.3	20:10 22.0	●	F	16	4:12 -0.5	8:50 24.0	16:35 -1.0	21:13 24.0	●	S	16	4:41 -0.4	9:19 23.8	17:08 -1.3	21:42 23.5												
	W	17	3:53 0.2	8:32 22.9	16:15 -0.1	20:52 23.5	P	S	17	4:58 -1.0	9:35 24.5	17:20 -1.4	21:58 24.2	S	M	17	5:32 -0.9	10:02 23.9	17:57 -1.5	22:30 23.4												
	Th	18	4:37 -0.9	9:12 24.2	17:00 -1.1	21:33 24.4		S	18	5:43 -1.1	10:17 24.4	18:08 -1.3	22:40 23.7	Tu	18	6:20 -0.6	10:50 23.6	18:42 -1.2	23:17 22.8													
	F	19	5:18 -1.5	9:52 24.7	17:39 -1.3	22:12 24.6	s	M	19	6:29 -0.4	11:00 23.8	18:52 -0.5	23:25 22.9	W	19	7:07 0.0	11:36 22.7	19:30 -0.4														
	S	20	6:00 -1.3	10:33 24.7	18:20 -1.0	22:54 24.2		Tu	20	7:17 0.6	11:45 22.5	19:40 0.5		Th	20	0:04 21.8	7:55 1.0	12:23 21.4	20:20 0.7													
P	S	21	6:42 -0.5	11:14 23.9	19:05 -0.1	23:35 23.0		W	21	0:12 21.5	8:07 2.0	12:33 20.8	20:32 1.9	F	21	0:55 20.5	8:44 2.3	13:16 19.8	21:09 2.1													
	M	22	7:28 0.8	11:55 22.6	19:50 1.1			Th	22	1:06 19.8	9:00 3.4	13:33 19.0	21:28 3.3	D	S	22	1:54 19.0	9:34 3.5	14:19 18.2	22:01 3.3												
	Tu	23	0:19 21.5	8:16 2.3	12:42 20.8	20:41 2.6	D	F	23	2:16 17.9	9:58 4.7	14:48 17.3	22:29 4.3	E	S	23	3:00 17.6	10:30 4.5	15:30 16.9	22:56 2.5												
	W	24	1:13 19.6	9:08 3.9	13:42 18.8	21:40 4.1		S	24	3:40 16.6	11:03 5.4	16:14 16.1	23:39 4.7	M	24	4:10 16.8	11:30 5.2	16:40 16.2														
	Th	25	2:27 17.6	10:10 5.3	15:05 16.9	22:45 5.2		S	25	4:58 16.6	12:18 5.1	17:25 16.5		Tu	25	0:00 4.8	5:17 16.7	12:38 5.2	17:45 16.3													
E	F	26	4:02 16.0	11:25 6.0	16:42 15.8		E	M	26	0:50 4.2	5:59 17.5	13:30 4.2	18:24 17.4	W	26	1:08 4.7	6:15 17.2	13:45 4.7	18:40 16.9													
	S	27	0:05 5.2	6:27 16.3	12:52 5.2	17:56 16.7		Tu	27	1:59 3.4	6:51 18.5	14:30 3.2	19:13 18.3	Th	27	2:13 4.2	7:05 17.7	14:45 3.7	19:28 17.6													
	S	28	1:27 4.0	6:30 17.8	14:07 3.7	18:54 18.1		W	28	2:53 2.3	7:34 19.2	15:20 2.0	19:55 19.1	A	F	28	3:10 3.5	7:47 18.4	15:35 2.9	20:08 18.3												
	M	29	2:33 2.4	7:20 19.2	15:04 2.1	19:40 19.4		Th	29	3:40 1.7	8:13 19.9	16:02 1.3	20:32 19.7	S	29	3:55 3.0	8:25 19.1	16:16 2.2	20:45 18.9													
	Tu	30	3:25 1.0	8:02 20.3	15:50 0.8	20:20 20.5	○	F	30	4:21 1.3	8:49 20.4	16:40 1.1	21:07 20.2	○	S	30	4:35 2.6	9:00 19.8	16:52 1.8	21:21 19.6												
	W	31	4:08 0.1	8:38 21.1	16:28 0.1	20:58 21.1							N	M	31	5:07 2.5	9:32 20.5	17:25 1.7	21:52 20.3													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the French Charts for this region, and which is 11.3 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Paris Mean Civil, for the meridian, 2° 20' E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.					FEBRUARY.					MARCH.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
E	M 1	0:10	6:44	12:30	19:00	A	Th 1	0:40	7:02	12:42	19:18	A	1	5:28	11:24	17:47	23:54
		1.9	13.2	8.2	12.9			3.0	11.5	5.9	11.7			13.0	2.3	13.2	2.6
	Tu 2	0:50	7:38	13:15	19:40			1:25	7:50	13:34	20:22			6:00	12:02	18:26	
D	W 3	1:48	8:45	13:52	20:48	S	3	2:30	9:14	14:38	22:17	D		0:34	6:40	12:50	19:14
		3.6	11.1	6.0	11.3			4.8	10.2	5.1	10.5			3.5	11.6	3.7	11.4
	Th 4	2:45	9:52	14:52	22:10			3:32	10:54	16:06	23:30			1:22	7:35	13:48	20:26
A	F 5	4:00	10:55	16:20	23:15	M	5	5:00	11:55	17:34		N		2:24		15:05	22:40
		4.3	11.2	5.4	11.6			5.2	11.5	4.3				5.1	10.2	4.8	10.5
	S 6	5:05	11:48	17:30			N	Tu 6	6:28	12:42	18:30			3:50	11:10	16:42	23:55
N	S 7	0:10	5:58	12:34	18:17	W	7	1:12	6:58	13:24	19:16	T		5:30	12:10	17:58	
		12.2	4.2	12.4	4.0			13.0	3.4	13.5	2.1			4.9	12.1	8.4	
	M 8	0:55	6:40	13:12	19:00		Th 8	1:50	7:32	14:00	19:54			0:45	6:29	12:56	18:49
O	Tu 9	1:34	7:16	13:45	19:37	F	9	2:25	8:12	14:34	20:32	O		12.8	3.6	13.5	1.9
		13.2	3.0	13.6	2.0			14.6	1.5	15.2	-0.2			1:28	7:12	13:36	19:32
	W 10	2:06	7:46	14:15	20:10		S 10	3:00	8:45	15:07	21:12			14.0	2.3	14.7	0.5
E	Th 11	2:40	8:22	14:50	20:45	S	11	3:36	9:21	15:41	21:50	E		2:10	7:50	14:12	20:11
		14.3	1.7	14.6	0.3			15.7	0.2	16.1	-0.3			15.1	1.1	15.7	-0.7
	F 12	3:14	8:56	15:20	21:23		M 12	4:10	10:00	16:20	22:20			2:40	8:25	14:50	20:50
P	S 13	3:48	9:35	15:54	22:05	Tu	13	4:50	10:40	17:00	23:14	P		15.9	0.2	16.5	-1.5
		14.9	1.0	15.2	-0.5			15.3	0.3	15.8	-0.7			3:15	9:02	15:24	21:30
	S 14	4:25	10:14	16:30	22:46		W 14	5:30	11:22	17:42	23:58			16.4	-0.5	16.9	-1.8
F	M 15	5:08	10:57	17:14	23:32	Th	15	6:15	12:09			T		16.0	-0.5	16.5	-0.8
		14.7	1.3	14.8	0.1			14.0	1.7	14.1				5:08	11:00	17:26	23:36
	Tu 16	5:52	11:43	18:00			F 16	6:48	12:48	18:02	19:36			15.3	-0.8	15.5	0.4
C	W 17	0:22	6:44	12:30	18:54	S	17	1:48	8:27	14:06	21:10	C		5:50	11:47	18:20	
		0.8	13.4	2.5	13.5			1.5	12.8	2.6	13.0			14.2	1.1	14.3	
	Th 18	1:15	7:46	13:28	20:00		S 18	3:10	10:06	15:40	22:52			0:25	6:44	12:40	19:25
P	F 19	2:20	9:06	14:35	21:30	M	19	4:53	11:28	17:16		S		1.8	12.9	2.2	12.9
		2.6	11.8	3.8	12.2			4.1	11.4	4.2	12.3			3.4	11.7	3.4	11.9
	S 20	3:40	10:34	16:04	23:02		Tu 20	5:05	6:10	12:28	18:28			2:50	9:44	15:25	22:42
S	S 21	5:04	11:45	17:30		W	21	1:05	7:08	13:20	19:20	W		4.8	11.3	4.2	12.2
		3.4	12.8	3.3				14.2	2.8	14.5	1.4			4.4	11:08	17:06	23:56
	M 22	0:14	6:14	2:40	18:35		Th 22	1:54	7:50	14:00	20:05			4.9	12.3	3.6	13.0
●	Tu 23	1:10	7:10	13:30	19:26	F	23	2:35	8:26	14:41	20:43	●		6:00	12:09	18:15	
		14.6	2.1	14.7	1.1			15.4	1.6	15.9	0.0			4.1	13.4	2.6	
	W 24	2:00	7:58	14:15	20:14		S 24	3:13	9:00	15:18	21:18			0:52	6:52	13:00	19:07
●	Th 25	2:46	8:40	14:55	20:55	S	25	3:45	9:26	15:49	21:52	E		13.9	3.2	14.5	1.5
		15.6	1.3	15.8	-0.3			15.5	14.6	16.0	-0.2			1:38	7:35	13:41	19:48
	F 26	3:27	9:15	15:34	21:35		M 26	4:15	9:50	16:17	22:20			14.7	2.4	15.3	0.8
E	S 27	4:08	9:47	16:10	22:14	Tu	27	4:40	10:18	16:50	22:48	●		2.18	8.10	14:20	20:25
		15.3	1.4	15.5	-0.1			15.5	14.6	16.0	-0.2			15.2	1.8	15.7	0.3
	S 28	4:44	10:17	16:45	22:50		W 28	5:02	10:48	17:15				2:50	8:36	14:58	20:58
A	M 29	5:20	10:50	17:20	23:25	Th	29					A		15.2	1.5	15.8	0.3
		13.9	2.1	14.3	1.2			14.2	1.5	14.7	1.0			3:20	9:00	15:25	21:22
	Tu 30	6:50	11:24	17:54				14.8	1.3	15.2	0.4			15.0	1.3	15.4	0.5
E	W 31	0:02	6:24	12:00	18:34	F	30					W		3:44	9:22	15:53	21:48
		2.0	12.2	3.3	12.6			5:02	10:48	17:15				8:14	1.2	15.0	0.8
								13.6	1.8	14.0	1.7			14.6	1.2	14.6	1.2
												4:05	9:50	16:16	22:13		
												14.2	1.2	14.6	1.2		
												4:23	10:20	16:44	22:42		
												13.9	1.4	14.0	1.2		
												4:50	10:54	17:12	23:15		
												18.5	1.7	13.5	2.4		
												5:20	11:34	17:50	23:54		
												12.9	2.3	12.8	3.2		

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 8.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0° is midnight, 12° is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3 47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, F, moon in apogee or perigee.



JULY.							AUGUST.							SEPTEMBER.						
Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.				Moon.	Day of—		Time and Height of High and Low Water.			
	W.	Mo.						W.	Mo.						W.	Mo.				
P O N C A N E D	S	1	2:32 3.5	9:05 12.5	15:20 2.5	22:08 12.3	P	W	1	4:34 3.4	11:30 13.0	17:28 3.2	18:35 2.5	○	S	1	0:52 14.3	6:50 1.5	13:28 14.8	19:25 2.2
	M	2	3:42 3.5	10:24 12.8	16:30 2.5	23:18 12.9	S	Th	2	0:04 13.1	5:52 2.6	12:38 14.0	18:35 2.5	○	S	2	1:38 15.2	7:40 0.5	14:12 15.4	20:05 1.6
	Tu	3	4:55 2.9	11:40 13.6	17:38 2.1			F	3	1:00 14.2	6:52 1.5	13:32 14.9	19:28 1.9	M	3	2:20 16.0	8:21 -0.2	14:52 15.6	20:40 1.2	
	W	4	0:15 13.7	6:02 2.0	12:40 14.4	18:40 1.6	○	S	4	1:48 15.2	7:45 0.4	14:20 15.5	20:10 1.4	Tu	4	2:57 16.2	9:00 -0.4	15:28 15.6	21:09 1.0	
	Th	5	1:10 14.6	7:00 1.0	13:35 15.2	19:30 1.1		S	5	2:30 15.7	8:30 -0.3	15:04 15.7	20:52 1.1	E	W	5	3:32 16.0	9:34 -0.3	16:00 15.1	21:35 1.0
	F	6	1:54 15.2	7:50 0.2	14:26 15.7	20:17 0.9		M	6	3:10 16.0	9:12 -0.6	15:45 15.6	21:27 1.1	Th	6	4:05 15.6	10:05 0.2	16:28 14.5	22:18 1.2	
	S	7	2:40 15.6	8:40 -0.4	15:13 15.8	21:00 0.9		Tu	7	3:48 15.8	9:52 -0.4	16:24 15.1	22:00 1.3	F	7	4:36 15.0	10:36 0.9	16:54 18.8	22:37 1.6	
	S	8	3:21 15.7	9:24 -0.6	16:00 15.6	21:45 1.6		W	8	4:26 15.5	10:30 0.0	17:00 14.4	22:35 1.7	S	8	5:08 14.2	11:06 1.7	17:20 13.1	23:12 2.2	
	M	9	4:04 15.5	10:08 -0.4	16:48 15.1	22:24 1.6	E	Th	9	5:04 14.8	11:13 0.8	17:35 13.6	23:12 2.2	S	9	5:40 13.2	11:44 2.7	17:50 12.3	23:51 3.0	
	Tu	10	4:48 15.0	10:54 0.1	17:32 14.3	23:06 2.2		F	10	5:43 14.0	11:48 1.7	18:12 12.7	23:50 2.9	A C	M	10	6:20 12.2	12:22 3.6	18:30 11.6	
W	11	5:30 14.3	11:40 0.4	18:23 13.4	23:50 3.0		S	11	6:24 13.0	12:26 2.7	18:51 11.8		Tu	11	0:38 3.8	7:08 11.3	13:06 4.6	19:23 10.8		
Th	12	6:20 13.5	12:28 1.9	19:12 12.5		○	S	12	0:30 3.6	7:10 12.0	13:10 3.7	19:38 11.0	N	W	12	1:35 4.5	8:20 10.4	14:08 5.4	20:55 10.1	
F	13	0:32 3.7	7:13 12.6	13:20 2.8	20:10 11.7	A	M	13	1:20 4.4	8:12 11.0	14:04 4.7	20:52 10.4	Th	13	2:48 5.0	10:38 10.4	15:31 5.7	23:00 10.8		
S	14	1:25 4.4	8:17 11.9	14:17 3.8	21:17 11.2		Tu	14	2:20 5.0	9:50 10.6	15:10 5.4	22:30 10.5	F	14	4:28 4.8	11:45 11.4	17:15 5.2	23:07 11.9		
S	15	2:24 5.0	9:34 11.5	15:24 4.5	22:25 11.1		W	15	3:50 5.3	11:18 11.1	16:50 5.5	23:40 11.3	S	15	5:40 3.8	12:32 12.5	18:10 4.1			
M	16	3:38 5.3	10:48 11.6	16:35 4.8	23:24 11.5	N	Th	16	5:16 4.8	12:15 11.7	17:52 4.9		S	16	0:42 13.1	6:30 2.5	13:12 13.6	18:54 2.8		
Tu	17	4:56 5.0	11:50 12.0	17:34 4.6			F	17	0:28 12.1	6:14 3.8	13:00 12.5	18:40 4.0	M	17	1:20 14.3	7:15 1.1	13:47 14.6	19:30 1.6		
W	18	0:14 12.0	5:55 4.4	12:39 12.4	18:21 4.2		S	18	1:10 13.1	7:00 2.6	13:38 3.0	19:20 3.0	●	Tu	18	1:55 15.2	7:52 -0.2	14:20 15.6	20:04 0.5	
Th	19	0:55 12.6	6:40 3.6	13:20 12.8	19:00 3.7		S	19	1:45 13.9	7:38 1.5	14:11 14.1	19:50 2.0	E	W	19	2:28 16.0	8:28 -1.0	14:51 16.1	20:40 -0.3	
N	F	20	1:30 13.1	7:19 2.7	13:56 13.2	19:30 3.0	●	M	20	2:16 14.7	8:14 0.4	14:44 14.8	20:28 1.2	Th	20	3:04 16.0	9:05 -1.5	15:26 16.3	21:18 -0.6	
●	S	21	2:00 13.6	7:58 1.8	14:27 13.7	20:04 2.4		Tu	21	2:48 15.3	8:50 -0.4	15:15 15.3	21:00 0.5	F	21	3:40 16.8	9:45 -1.4	16:08 16.1	21:56 -0.6	
S	22	2:30 14.1	8:28 1.0	15:00 14.1	20:40 1.8		W	22	3:24 15.8	9:28 -0.9	15:50 15.5	21:39 0.2	P	S	22	4:18 16.5	10:25 -0.9	16:40 15.5	22:38 -0.1	
M	23	3:08 14.6	9:04 0.3	15:30 14.4	21:15 1.4	E	Th	23	3:58 16.0	10:06 -1.0	16:25 15.4	22:20 0.2	S	23	5:00 15.7	11:10 0.2	17:24 14.5	23:25 0.7		
Tu	24	3:38 14.9	9:44 -0.1	16:04 14.6	21:54 1.1		F	24	4:40 15.9	10:50 -0.6	17:05 15.0	23:00 0.6	M	24	5:50 14.6	11:58 1.5	18:12 13.4			
W	25	4:11 15.1	10:12 -0.3	16:44 14.6	22:34 1.2		S	25	5:20 15.4	11:32 0.1	17:49 14.2	23:44 1.3	● S	Tu	25	0:15 1.8	6:50 13.3	12:52 3.0	19:15 12.1	
Th	26	4:50 15.0	11:07 0.0	17:25 14.4	23:18 1.6		S	26	6:08 14.5	12:22 1.2	18:40 13.8		W	26	1:16 2.9	8:20 12.1	14:05 4.4	20:50 11.2		
E	F	27	5:36 14.6	11:54 0.5	18:11 13.9		● P	M	27	0:35 2.1	7:04 13.4	13:17 2.5	19:39 12.2	Th	27	2:40 3.8	10:10 12.0	16:00 5.0	22:33 12.0	
●	S	28	0:06 2.0	6:24 14.0	12:45 1.2	19:00 13.1		Tu	28	1:35 3.0	8:22 12.3	14:25 3.7	21:10 11.4	F	28	4:25 3.7	11:26 12.9	17:28 4.3	23:41 13.2	
S	29	0:57 2.6	7:22 13.3	13:40 2.1	20:07 12.3		S	W	29	2:52 3.8	10:10 12.0	16:02 4.4	22:46 11.8	S	29	5:44 2.6	12:26 13.9	18:26 3.3		
M	30	1:58 3.2	8:34 12.6	14:48 3.0	21:30 11.9		Th	30	4:32 3.8	11:34 12.9	17:34 4.0	23:54 13.0	S	30	0:35 14.3	6:40 1.5	13:15 14.7	19:12 2.4		
Tu	31	3:10 3.6	10:07 12.4	16:09 3.5	22:55 12.2		F	31	5:52 2.7	12:36 13.9	18:37 3.1									

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 8.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



NOVEMBER.										DECEMBER.									
Day of—					Time and Height of High and Low Water.					Day of—					Time and Height of High and Low Water.				
W. No.					W. No.					W. No.					W. No.				
M 1	1	1:20	7:25	13:55	19:48	○ Th 1	2:18	8:14	14:37	20:22	A S 1	2:30	8:16	14:38	20:26	14:3	2:1	14:0	1:7
○ Tu 2	2	2:02	8:05	14:30	20:20	F 2	2:50	8:40	15:00	20:44	S 2	3:00	8:40	15:10	20:52	14:1	2:2	13:9	1:4
W 3	3	2:40	8:40	15:04	21:00	S 3	3:17	9:02	15:24	21:12	N M 3	3:25	9:00	15:25	21:23	13:8	2:1	13:9	1:1
Th 4	4	3:10	9:07	15:28	21:10	A S 4	3:42	9:27	15:42	21:42	Tu 4	3:50	9:24	15:50	22:00	13:6	2:1	13:9	1:1
F 5	5	3:40	9:34	15:52	21:38	M 5	4:06	9:56	16:08	22:18	W 5	4:20	10:10	16:22	22:28	13:5	2:3	13:7	1:3
■ 6	6	4:07	9:58	16:13	22:06	N Tu 6	4:38	10:29	16:40	22:55	Th 6	5:00	10:48	17:02	23:22	13:1	2:6	13:3	1:6
A S 7	7	4:34	10:30	16:39	22:40	W 7	5:15	11:08	17:17	23:40	F 7	5:40	11:30	17:48	23:58	12:8	3:1	12:8	1:1
M 8	8	5:00	11:00	17:08	23:20	Th 8	6:00	11:52	18:08	24:00	S 8	6:14	12:02	18:24	24:18	2:1	12:3	3:5	12:3
Tu 9	9	5:40	11:40	17:48	24:00	○ F 9	6:58	12:47	19:10	24:10	○ S 9	1:10	12:47	19:24	24:18	2:5	11:9	4:0	12:0
N W 10	10	6:05	12:22	18:38	24:38	S 10	7:34	13:34	19:58	24:38	E M 10	2:15	13:54	19:58	24:38	2:8	11:7	4:2	11:9
Th 11	11	6:30	13:00	19:10	25:00	S 11	8:17	14:22	20:48	24:58	Tu 11	3:25	14:22	20:50	25:00	2:8	12:1	3:9	12:5
F 12	12	7:08	13:30	19:40	25:45	M 12	9:12	15:13	21:42	25:22	W 12	4:35	15:24	21:40	25:40	4:3	12:0	3:1	12:3
S 13	13	7:36	14:04	20:20	26:14	E Tu 13	10:16	16:04	22:42	26:14	Th 13	5:39	16:20	22:00	26:14	1:7	14:0	2:0	1:1
S 14	14	8:02	14:57	21:05	26:58	W 14	11:02	16:10	23:42	26:58	F 14	6:35	16:32	23:05	26:58	14:6	0:9	14:9	0:8
M 15	15	8:36	15:57	22:00	27:24	Th 15	12:00	16:57	24:36	27:16	P S 15	1:27	17:22	23:49	27:42	15:5	0:2	15:6	0:2
Tu 16	16	9:06	16:45	23:18	28:00	● F 16	1:40	17:40	25:36	28:06	S 16	2:14	18:06	24:32	28:25	16:2	0:1	16:1	0:1
W 17	17	1:26	7:25	13:52	19:40	P S 17	2:25	8:24	14:45	20:40	S M 17	3:00	8:54	15:16	21:14	16:4	0:1	16:2	0:1
Th 18	18	2:04	8:04	14:26	20:20	S 18	3:06	9:06	15:28	21:23	Tu 18	3:48	9:36	15:56	22:00	16:2	0:3	15:9	0:9
P F 19	19	2:40	8:44	15:05	20:56	S M 19	3:54	9:50	16:08	22:08	W 19	4:36	10:00	16:40	22:50	16:7	0:9	15:3	0:4
S 20	20	3:24	9:24	15:40	21:38	Tu 20	4:42	10:34	16:52	22:57	Th 20	5:25	11:05	17:30	23:40	15:5	1:8	14:5	0:5
S 21	21	4:04	10:05	16:22	22:21	W 21	5:35	11:20	17:42	23:52	F 21	6:24	11:55	18:25	24:18	15:8	2:8	13:6	1:1
M 22	22	4:48	10:48	17:06	23:06	Th 22	6:40	12:15	18:42	24:42	D S 22	7:26	12:50	19:25	25:00	1:6	12:6	3:8	12:7
S Tu 23	23	5:40	11:37	17:55	24:00	D F 23	7:58	13:00	19:28	25:38	K S 23	1:40	13:38	20:00	26:00	2:6	12:1	4:6	12:1
D W 24	24	6:00	12:32	18:58	25:00	S 24	8:12	13:52	20:18	26:18	M 24	2:50	14:31	20:50	26:50	3:4	11:9	5:1	12:4
Th 25	25	1:05	8:17	13:47	20:35	S 25	9:42	14:34	21:06	27:45	Tu 25	3:8	15:55	21:40	27:45	3:8	12:1	4:9	12:7
F 26	26	2:34	9:54	15:44	22:10	F M 26	11:36	15:30	22:44	28:44	W 26	5:16	16:50	22:42	28:45	8:7	12:5	4:3	1:1
S 27	27	4:12	11:10	17:09	23:18	Tu 27	12:52	16:18	23:18	29:18	Th 27	6:10	17:42	23:37	29:18	13:1	3:6	12:9	3:5
S 28	28	5:25	12:06	18:06	24:06	W 28	14:2	17:10	24:00	30:00	A F 28	7:00	18:18	24:18	30:00	13:4	3:3	13:3	3:2
E M 29	29	6:18	12:52	18:50	25:00	Th 29	1:19	18:00	24:42	30:42	S 29	1:40	19:00	25:00	30:42	13:6	3:2	13:6	2:6
Tu 30	30	1:00	7:05	13:32	19:25	○ F 30	1:58	7:52	14:18	20:00	○ S 30	2:17	7:56	14:22	20:12	13:7	2:9	13:8	2:0
W 31	31	1:40	7:43	14:06	19:55		14:6	2:1	14:2	2:0	N M 31	2:48	8:19	14:48	20:40	13:6	2:6	13:9	1:5

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 8.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 16:47 is 4:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Mo.	Day of—	Time and Height of High and Low Water.								Mo.	Day of—	Time and Height of High and Low Water.								Mo.	Day of—	Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 10.0 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon, all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



JULY.						AUGUST.						SEPTEMBER.					
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
	S 1	4:10 16.8	7:45 4.5	13:30 16.9	20:08 2.6	P	W 1	3:02 16.1	9:40 8.3	15:34 16.4	22:11 2.4		S 1	4:55 17.6	11:22 1.0	17:30 17.7	23:51 1.5
	M 2	2:20 16.8	8:56 3.9	14:41 16.5	21:23 2.4	S	Th 2	4:09 17.2	10:42 2.3	16:41 17.1	23:10 1.8	○	S 2	5:43 18.5	12:10 0.1	18:18 18.4	
	Tu 3	3:26 17.2	10:00 3.1	15:49 17.0	22:25 1.7		F 3	5:08 17.9	11:37 1.3	17:38 17.8			M 3	0:36 1.0	6:27 19.2	12:55 —0.4	19:00 18.7
P	W 4	4:20 17.9	10:59 2.1	16:51 17.6	23:21 1.1	○	S 4	0:02 1.4	6:00 18.5	12:28 0.5	18:30 18.2		Tu 4	1:15 0.9	7:07 19.4	13:35 —0.5	19:35 18.7
	Th 5	5:20 18.6	11:50 1.2	17:45 18.2			S 5	0:50 1.2	6:44 19.0	13:12 0.0	19:12 18.4	E	W 5	1:53 1.2	7:41 19.3	14:11 —0.1	20:07 18.3
○	F 6	0:13 0.9	6:09 19.0	12:39 0.6	18:35 18.5		M 6	1:32 1.3	7:23 19.2	13:54 0.0	19:58 18.2		Th 6	2:25 1.9	8:12 18.9	14:45 0.7	20:37 17.9
	S 7	0:59 1.0	6:53 19.1	13:24 0.4	19:21 18.5		Tu 7	2:11 1.8	8:00 19.0	14:32 0.4	20:30 17.8		F 7	2:55 2.7	8:42 18.2	15:15 1.8	21:07 17.8
	S 8	1:43 1.3	7:33 19.1	14:07 0.5	20:05 18.2		W 8	2:48 2.5	8:33 18.6	15:10 1.0	21:05 17.4		S 8	3:23 3.6	9:12 17.5	15:48 2.9	21:35 16.8
	M 9	2:25 2.0	8:13 18.8	14:48 0.8	20:46 17.7	E	Th 9	3:21 3.3	9:08 18.0	15:47 1.8	21:39 16.9		S 9	3:51 4.4	9:45 16.9	16:21 4.0	22:08 16.3
	Tu 10	3:05 2.9	8:51 18.3	15:30 1.3	21:28 17.1		F 10	3:55 4.1	9:42 17.4	16:25 2.8	22:15 16.3	A	M 10	4:26 5.0	10:25 16.1	17:00 4.9	22:51 15.6
	W 11	3:46 3.7	9:31 17.7	16:15 2.0	22:10 16.5		S 11	4:30 5.0	10:22 16.6	17:07 3.7	22:55 15.7	○	Tu 11	5:14 5.6	11:14 15.3	17:50 5.8	23:44 15.0
E	Th 12	4:29 4.5	10:13 17.0	17:01 2.7	22:55 15.9	○	S 12	5:12 5.6	11:05 15.8	17:55 4.6	23:41 15.2	N	W 12	6:22 6.2	12:15 14.6	19:03 6.3	
○	F 13	5:16 5.2	11:00 16.3	17:53 3.3	23:45 15.4	A	M 13	6:10 6.1	11:58 15.1	18:51 5.2			Th 13	0:51 14.6	7:45 6.0	13:30 14.3	20:22 5.9
	S 14	6:12 5.6	11:53 15.7	18:59 3.9			Tu 14	0:40 14.8	7:20 6.2	13:04 14.6	19:58 5.3		F 14	2:05 14.6	9:00 5.0	14:50 14.8	21:34 4.9
	S 15	0:42 15.0	7:17 6.7	12:54 15.2	19:50 4.1		W 15	1:46 14.7	8:36 5.6	14:16 14.6	21:05 4.9		S 15	3:17 15.5	10:04 3.6	15:56 16.0	22:30 3.6
A	M 16	1:43 14.9	8:23 6.4	14:00 15.0	20:50 4.0	N	Th 16	2:54 15.2	9:40 4.6	15:25 15.2	22:05 4.0		S 16	4:17 16.9	10:55 2.1	16:50 17.4	23:20 2.2
	Tu 17	2:45 15.3	9:25 4.8	15:05 15.3	21:48 3.5		F 17	3:55 16.0	10:36 3.4	16:26 16.2	22:58 3.0		M 17	5:09 18.3	11:42 0.6	17:36 18.9	
	W 18	3:41 16.0	10:19 3.8	16:05 15.9	22:40 2.9		S 18	4:50 17.3	11:26 2.0	17:17 17.4	23:44 2.0	●	Tu 18	0:04 0.5	5:54 19.6	12:24 —0.5	18:19 20.1
	Th 19	4:33 17.0	11:08 2.8	16:57 16.8	23:26 2.2		S 19	5:35 18.5	12:08 0.8	18:00 18.6		E	W 19	0:42 0.1	6:35 20.7	13:03 —1.3	19:00 21.0
N	F 20	5:19 17.8	11:54 1.9	17:43 17.6		●	M 20	0:26 1.1	6:18 19.6	12:48 —0.1	18:42 19.6		Th 20	1:20 —0.4	7:14 21.2	13:40 —1.5	19:38 21.3
●	S 21	0:09 1.7	6:00 18.7	12:33 1.0	18:25 18.2		Tu 21	1:05 0.5	6:57 20.4	13:28 —0.8	19:23 20.2		F 21	1:58 —0.4	7:54 21.3	14:20 —1.3	20:19 21.2
	S 22	0:48 1.3	6:40 19.4	13:11 0.4	19:05 19.0		W 22	1:42 0.3	7:37 20.9	14:05 —1.0	20:04 20.6	P	S 22	2:37 0.0	8:35 21.0	15:01 —0.5	21:00 21.6
	M 23	1:24 1.2	7:18 19.8	13:59 0.1	19:45 19.3	E	Th 23	2:20 0.4	8:16 20.9	14:45 —0.9	23:43 20.5		S 23	3:20 0.7	9:20 20.2	15:49 0.6	21:46 19.5
	Tu 24	2:00 1.2	7:56 20.1	14:28 —0.1	20:24 19.5		F 24	3:00 0.7	8:58 20.6	12:27 —0.3	21:26 20.1		M 24	4:09 1.8	10:10 19.8	16:40 2.1	22:38 18.2
	W 25	2:40 1.4	8:36 20.1	15:08 0.0	21:06 19.5		S 25	3:43 1.4	9:42 19.9	16:15 0.6	22:14 19.2	○	Tu 25	5:08 2.9	11:08 17.6	17:45 3.4	23:40 16.9
	Th 26	3:21 1.8	9:19 19.8	15:53 0.4	21:51 19.2		S 26	4:34 2.3	10:32 18.8	17:08 1.8	23:06 18.2		W 26	6:18 3.7	12:19 16.3	19:04 4.3	
E	F 27	4:06 2.4	10:05 19.1	16:42 1.1	22:41 18.6	○	M 27	5:32 3.3	11:30 17.6	18:11 2.9			Th 27	0:52 15.8	7:40 3.7	13:42 15.7	20:25 4.3
○	S 28	5:00 3.1	10:55 18.3	17:36 1.8	23:36 17.8		Tu 28	0:09 17.0	6:45 4.0	12:38 16.5	19:25 3.6		F 28	2:14 15.6	8:58 8.0	15:07 15.9	21:48 3.6
	S 29	6:00 3.8	11:55 17.4	18:40 2.6		S	W 29	1:22 16.2	8:04 4.0	14:00 15.9	20:45 3.6		S 29	3:30 16.4	10:04 2.0	16:17 16.8	22:40 2.6
	M 30	0:40 17.0	7:12 4.2	13:01 16.5	19:50 3.0		Th 30	2:40 16.0	9:21 3.2	15:21 16.2	21:56 3.1		S 30	4:31 17.5	11:00 0.8	17:14 17.8	23:30 1.6
	Tu 31	1:50 16.6	8:29 4.0	14:18 16.2	21:03 2.9		F 31	3:53 16.7	10:25 2.2	16:30 16.9	22:58 2.3						

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The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ○, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.				NOVEMBER.				DECEMBER.			
Mo.	Day of—	Time and Height of High and Low Water.		Mo.	Day of—	Time and Height of High and Low Water.		Mo.	Day of—	Time and Height of High and Low Water.	
	W. Mo.				W. Mo.				W. Mo.		
P	M 1	5:23 18.7	11:49 -0.3	O	Th 1	0:27 0.7	6:20 19.3	A	S 1	0:38 1.0	6:30 18.5
	Tu 2	0:14 0.7	6:07 19.4		F 2	1:04 0.7	6:55 19.2		S 2	1:15 1.0	7:05 18.4
	W 3	0:53 0.5	6:45 19.7		S 3	1:38 1.1	7:28 18.8		N M 3	1:50 1.3	7:38 18.2
A	Th 4	1:28 0.7	7:19 19.5	A	S 4	2:07 1.7	7:58 18.2	N	Tu 4	2:19 1.7	8:08 17.9
	F 5	2:01 1.3	7:51 19.0		M 5	2:37 2.5	8:28 17.7		W 5	2:50 2.2	8:40 17.6
	S 6	2:30 2.1	8:20 18.3		N Tu 6	3:05 3.1	8:56 17.2		Th 6	3:27 2.6	9:20 17.3
N	S 7	2:56 3.0	8:48 17.7	C	W 7	3:40 3.7	9:24 16.6	E	F 7	4:10 3.0	10:04 16.8
	M 8	3:24 3.8	9:18 17.0		Th 8	4:21 4.8	10:20 16.0		S 8	4:59 3.4	10:55 16.4
	Tu 9	3:37 4.5	9:55 16.2		F 9	5:17 4.8	11:15 15.3		C S 9	5:57 3.9	11:57 16.0
C	W 10	4:40 5.0	10:40 15.5	E	S 10	6:30 5.1	12:25 15.0	P	M 10	0:11 15.9	7:05 8.9
	Th 11	5:44 5.7	11:40 14.7		S 11	0:45 15.0	7:48 4.6		Tu 11	1:22 15.8	8:14 3.3
	F 12	0:06 14.6	7:05 5.9		M 12	2:00 15.4	8:50 8.5		W 12	2:33 16.2	9:18 2.6
P	S 13	1:22 14.5	8:22 5.0	P	Tu 13	3:10 16.3	9:50 2.2	S	Th 13	3:39 17.0	10:17 1.7
	S 14	2:41 15.2	9:29 3.7		W 14	4:09 17.6	10:43 1.0		F 14	4:38 17.8	11:10 0.8
	M 15	3:45 16.5	10:25 2.1		Th 15	5:00 18.7	11:30 0.0		S 15	5:31 18.6	12:00 0.3
E	Tu 16	4:40 18.0	11:18 0.7	S	F 16	5:50 19.5	12:14 -0.5	M	S 16	0:26 0.5	6:20 19.3
	W 17	5:27 19.3	11:56 -0.5		S 17	0:39 0.1	6:32 20.1		M 17	1:10 0.0	7:05 19.5
	Th 18	0:19 0.3	6:10 20.3		S 18	1:20 -0.2	7:15 20.3		Tu 18	1:53 -0.1	7:49 19.4
P	F 19	0:57 -0.3	6:50 20.9	S	M 19	2:00 0.0	7:50 20.0	W	W 19	2:38 0.1	8:33 18.9
	S 20	1:35 -0.4	7:31 21.0		Tu 20	2:46 0.4	8:43 19.4		Th 20	3:23 0.6	9:20 18.2
	S 21	2:15 -0.1	8:15 20.7		W 21	3:35 1.1	9:34 18.4		F 21	4:13 1.3	10:10 17.3
S	M 22	3:00 0.5	8:59 19.9	D	Th 22	4:30 1.9	10:30 17.2	D	S 22	5:06 2.0	11:06 16.4
	Tu 23	3:48 1.4	9:48 18.7		F 23	5:34 2.5	11:35 16.3		S 23	6:07 2.6	12:07 15.8
	W 24	4:46 2.5	10:48 17.4		S 24	6:42 2.8	12:49 15.6	E	M 24	0:16 16.1	7:10 2.9
D	Th 25	5:55 3.1	11:57 16.2	E	S 25	1:02 15.9	7:52 2.7		Tu 25	1:24 15.7	8:15 3.0
	F 26	0:24 15.9	7:12 8.3		M 26	2:16 16.1	9:00 2.1		W 26	2:34 15.8	9:17 2.7
	S 27	1:42 15.7	8:30 2.7	W	Tu 27	3:22 16.8	9:57 1.4	A	Th 27	3:38 16.2	10:11 2.3
E	S 28	3:00 16.4	9:34 1.8		W 28	4:19 17.5	10:48 0.8		F 28	4:34 16.7	11:01 1.8
	M 29	4:00 17.4	10:28 0.8		Th 29	5:08 18.1	11:33 0.4		S 29	5:23 17.3	11:47 1.4
	Tu 30	4:54 18.4	11:20 -0.1	C	F 30	0:00 1.3	5:52 18.4	C	S 30	0:13 1.6	6:05 17.7
N	W 31	5:40 19.0	12:04 -0.5						N M 31	0:51 1.1	6:41 18.1

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JANUARY.										FEBRUARY.										MARCH.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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APRIL.							MAY.							JUNE.						
Moon.	Day of—	Time and Height of High and Low Water.					Moon.	Day of—	Time and Height of High and Low Water.					Moon.	Day of—	Time and Height of High and Low Water.				
	W. Mo.							W. Mo.							W. Mo.					
N	S	1	4:58	10:46	17:20	23:00	D	Tu	1	5:30	11:04	17:42	23:37	F	1	0:20	7:12	12:37	19:26	
			13.3	8.2	12.6	3.5				13.0	8.9	12.4	3.3			2.8	13.1	4.4	13.2	
D	M	2	5:50	11:32	18:17	23:55		W	2	6:34	12:01	18:50		E	S	2	1:27	8:16	13:51	20:32
			12.6	4.0	11.9	4.0				12.6	4.6	12.2				2.9	13.3	4.4	13.6	
	Tu	3	7:00	12:35	19:28			Th	3	0:44	7:46	13:13	20:02	S	3	2:34	9:17	15:01	21:37	
			12.1	4.9	11.8					3.6	12.6	5.0	12.6			2.8	13.9	3.9	14.3	
	W	4	1:10	8:17	13:55	20:42		F	4	2:00	8:52	14:32	21:10	M	4	3:38	10:14	16:05	22:35	
			4.5	12.8	5.3	12.3				3.6	13.1	4.8	13.5			2.4	14.6	3.1	15.1	
	Th	5	2:33	9:28	15:14	21:49		S	5	3:10	9:52	15:40	22:10	Tu	5	4:36	11:07	17:03	23:30	
			4.2	12.9	4.9	13.4				3.0	13.9	3.9	14.6			1.8	15.5	2.2	15.9	
	F	6	3:45	10:24	16:18	22:42	E	S	6	4:10	10:45	16:37	23:04	P	W	6	5:30	11:58	17:56	
			3.3	13.9	4.0	14.6				2.1	14.9	2.9	15.7		O		1.2	16.3	1.3	
	S	7	4:44	11:16	17:10	23:34		M	7	5:05	11:34	17:29	23:54	Th	7	0:23	6:20	12:47	18:47	
			2.1	15.0	2.8	15.9				1.2	15.9	1.8	16.6			16.6	0.7	17.0	0.5	
E	S	8	5:35	12:03	17:57		O	Tu	8	5:55	12:20	18:18		S	F	8	1:18	7:10	13:34	19:35
			0.9	16.0	1.7		P			0.4	16.7	0.9				17.0	0.5	17.3	0.2	
O	M	9	0:20	6:20	12:47	18:38		W	9	0:42	6:41	13:07	19:02	S	9	2:00	7:58	14:22	20:23	
			16.9	-0.1	16.9	0.8				17.2	-0.1	17.3	0.3			17.1	0.6	17.3	0.1	
P	Tu	10	1:05	7:05	13:20	19:22		Th	10	1:30	7:28	13:51	19:50	S	10	2:51	8:45	15:10	21:12	
			17.7	-0.7	17.4	0.2				17.5	-0.3	17.4	0.0			16.8	1.0	16.9	0.3	
	W	11	1:49	7:48	14:13	20:05		F	11	2:16	8:13	14:38	20:36	M	11	3:42	9:34	16:00	22:03	
			17.9	-0.8	17.4	0.0				17.4	0.0	17.2	0.1			16.4	1.6	16.3	0.9	
	Th	12	2:34	8:32	14:56	20:48	S	S	12	3:05	9:01	15:26	21:25	Tu	12	4:33	10:26	16:52	22:54	
			17.7	-0.5	17.1	0.2				16.9	0.6	16.6	0.6			15.7	2.4	15.6	1.5	
	F	13	3:20	9:20	15:45	21:36		S	13	3:57	9:50	16:18	22:17	C	W	13	5:27	11:20	17:48	23:48
			17.1	0.2	16.4	0.8				16.2	1.5	15.8	1.4			15.0	3.2	14.8	2.8	
S	S	14	4:10	10:04	16:34	22:27		M	14	4:51	10:44	17:14	23:13	Th	14	6:23	12:18	18:43		
			16.1	1.3	15.4	1.7				15.4	2.6	15.0	2.2			14.4	4.0	14.1		
C	S	15	5:05	11:00	17:30	23:26	C	Tu	15	5:51	11:46	18:15		E	F	15	0:44	7:13	13:20	19:40
			15.1	2.5	14.4	2.7				14.5	3.5	14.2				2.9	13.8	4.5	13.7	
	M	16	6:08	12:00	18:38			W	16	0:14	6:52	12:52	19:16	S	16	1:42	8:10	14:23	20:37	
			14.1	3.6	13.7					3.0	13.9	4.3	13.8			3.3	13.5	4.9	13.4	
	Tu	17	0:34	7:16	13:15	19:45		Th	17	1:20	7:50	14:04	20:18	S	17	2:40	9:06	15:22	21:31	
			3.7	13.5	4.5	13.4				3.5	13.6	4.6	13.6			3.6	13.4	4.9	13.4	
	W	18	1:50	8:18	14:35	20:52	E	F	18	2:27	8:52	15:11	21:17	A	M	18	3:35	10:00	16:14	22:23
			4.0	13.2	4.7	13.5				3.5	13.5	4.5	13.7			3.6	13.6	4.6	13.7	
	Th	19	3:02	9:25	15:47	21:52		S	19	3:25	9:48	16:08	22:10	Tu	19	4:26	10:47	16:59	23:12	
			3.9	13.4	4.3	13.9				3.3	13.8	4.2	14.1			3.4	13.9	4.2	14.0	
	F	20	4:05	10:22	16:44	22:45		S	20	4:20	10:38	16:55	23:00	W	20	5:12	11:37	17:37	23:37	
			3.2	14.0	3.7	14.5				3.0	14.2	3.8	14.5			3.1	14.4	3.6	14.4	
E	S	21	4:59	11:12	17:30	23:32		M	21	5:07	11:22	17:37	23:42	●	Th	21	5:53	12:19	18:13	
			2.5	14.6	3.1	15.2				2.5	14.6	3.4	14.9			2.9	14.8	3.0		
	S	22	5:42	11:55	18:10		A	Tu	22	5:47	12:05	18:12		N	F	22	0:38	6:32	12:58	18:50
			1.9	15.3	2.6					2.2	15.0	3.0				14.8	2.6	15.1	2.4	
●	M	23	0:15	6:20	12:34	18:44	●	W	23	0:24	6:23	12:47	18:45		S	23	1:19	7:08	13:35	19:27
			15.7	1.4	15.7	2.3				15.2	2.0	15.4	2.6			15.1	2.4	15.2	1.8	
	Tu	24	0:58	6:55	13:15	19:12		Th	24	1:08	6:59	13:24	19:15		S	24	1:59	7:44	14:11	20:05
			16.0	1.1	16.0	2.1				15.4	1.9	15.4	2.3			15.2	2.4	15.2	1.3	
A	W	25	1:30	7:28	13:51	19:41		F	25	1:40	7:33	14:00	19:47		M	25	2:38	8:19	14:47	20:45
			16.1	1.1	15.9	2.0				15.4	1.9	15.3	2.0			15.2	2.4	15.1	1.1	
	Th	26	2:05	8:00	14:27	20:10	N	S	26	2:18	8:05	14:34	20:20		Tu	26	3:20	8:57	15:25	21:28
			15.9	1.3	15.5	2.0				15.2	2.1	15.0	1.8			15.0	2.4	14.8	1.1	
	F	27	2:40	8:31	14:58	20:40		S	27	2:58	8:40	15:07	21:00		W	27	4:08	9:36	16:09	22:13
			15.5	1.6	15.0	2.0				15.0	2.3	14.5	1.7			14.7	2.7	14.5	1.3	
	S	28	3:16	9:03	15:30	21:13		M	28	3:37	9:15	15:45	21:40		Th	28	4:51	10:20	16:55	23:02
			14.9	2.0	14.3	2.1				14.5	2.7	14.1	1.8			14.3	3.0	14.1	1.6	
N	S	29	3:53	9:38	16:07	21:52		Tu	29	4:21	9:56	16:28	22:28	D	F	29	5:42	11:09	17:49	23:56
			14.3	2.6	13.6	2.4				14.0	3.1	13.6	2.1	E			14.0	3.3	13.8	2.1
	M	30	4:38	10:17	16:48	22:40		W	30	5:13	10:40	17:17	23:20		S	30	6:38	12:06	18:52	
			13.6	3.2	13.0	2.8				13.6	3.6	13.2	2.4				13.6	3.7	13.6	
							D	Th	31	6:10	11:35	18:19								
										13.2	4.0	13.0								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 8.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 given the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
P	S 1	0:56	7:41	18:13	19:59	P	W 1	2:47	9:26	15:24	21:55	O	S 1	4:52	11:08	17:20	23:38
		2.6	13.4	4.1	13.6			3.7	13.7	4.0	13.9			3.2	15.2	2.3	15.2
	M 2	2:01	8:46	14:28	21:08	S	Th 2	3:57	10:26	16:30	22:55		S 2	5:46	11:58	18:10	...
		3.0	13.6	4.0	13.9			3.5	14.5	3.2	14.6			2.3	16.1	1.3	...
	Tu 3	3:08	9:47	15:40	22:13	F 3	5:00	11:23	17:30	23:51	M 3		0:22	6:32	12:42	18:50	
C		3.0	14.2	3.5	14.5	C	S 4	5:55	12:15	18:22	...	E	Tu 4	1:09	7:12	13:26	19:31
	W 4	4:12	10:45	16:43	23:12			2.1	16.3	1.1	...			16.7	1.2	17.3	0.0
		2.6	15.0	2.7	15.2		S 5	0:42	6:45	13:02	19:10		W 5	1:48	7:50	14:06	20:08
	Th 5	5:10	11:38	17:42	...			16.2	1.4	17.0	0.4			16.9	1.0	17.4	-0.1
		2.1	15.8	1.8	...		M 6	1:30	7:30	13:47	19:54		Th 6	2:30	8:23	14:44	20:44
S	F 6	0:06	6:05	12:30	18:33			16.7	1.1	17.4	0.0	A		16.8	1.3	17.0	0.2
		15.9	1.5	16.6	0.9	Tu 7	2:14	8:11	14:30	20:34	F 7		3:10	8:59	15:23	21:21	
	S 7	0:58	6:55	13:18	19:22		16.9	1.0	17.4	-0.1			16.2	1.7	16.2	0.8	
		16.5	1.1	17.2	0.3	W 8	2:55	8:52	15:12	21:15	S 8		3:50	9:30	16:00	21:58	
	S 8	1:46	7:43	14:06	20:09		16.8	1.3	17.0	0.1			15.5	2.3	15.8	1.5	
A		16.8	1.0	17.4	0.0	N	Th 9	3:40	9:30	15:55	21:55	S 9	4:28	10:05	16:40	22:35	
	M 9	2:35	8:50	14:53	20:56			16.3	1.8	16.3	0.7		14.5	3.0	14.2	2.5	
		16.8	1.1	17.2	0.1		F 10	4:25	10:10	16:36	22:37	M 10	5:10	10:40	17:25	23:16	
	Tu 10	3:22	9:16	15:39	21:41			15.6	2.6	16.3	1.5		13.5	3.8	13.2	3.5	
		16.6	1.5	16.8	0.4		S 11	5:10	10:50	17:22	23:20	Tu 11	5:58	11:21	18:20	...	
E	W 11	4:10	10:01	16:26	22:27			14.6	3.4	14.3	2.5	C		12.5	4.4	12.4	...
		16.1	2.1	16.1	1.0	C	S 12	5:58	11:30	18:10	...		W 12	0:06	6:56	12:20	19:26
	Th 12	4:58	10:48	17:13	23:14		13.7	4.3	13.3	...			4.4	11.9	5.0	12.0	
		15.4	2.9	15.2	1.7	A	M 13	0:07	6:52	12:20	19:05		Th 13	1:10	8:04	13:35	20:37
	F 13	5:50	11:38	18:06	...			3.4	12.9	5.0	12.6			5.2	11.8	5.3	12.2
S		14.6	3.7	14.3	...	N	Tu 14	1:00	7:49	13:26	20:14	F 14	2:26	9:08	14:55	21:40	
	S 14	0:02	6:42	12:27	18:57			4.8	12.3	5.6	12.3		5.4	12.2	4.9	12.7	
		2.6	13.9	4.5	13.6		W 15	2:02	8:49	14:30	21:13	S 15	3:36	10:04	16:00	22:35	
	S 15	0:55	7:35	13:24	19:54			4.8	12.2	5.5	12.4		5.1	13.1	4.0	13.6	
		3.8	13.3	5.1	13.0		Th 16	3:17	9:45	15:36	22:10	S 16	4:32	10:55	16:54	23:24	
A	M 16	1:52	8:30	14:24	20:52			5.0	12.6	5.1	12.9		4.3	14.2	2.7	14.6	
		3.9	12.9	5.4	12.8	F 17	4:10	10:36	16:30	23:02	M 17	5:19	11:40	17:40	...		
	Tu 17	2:50	9:25	15:24	21:47		4.7	13.2	4.1	13.6		3.8	15.4	1.5	...		
		4.3	12.8	5.3	12.9	S 18	5:00	11:25	17:22	23:50	●	Tu 18	0:10	6:00	12:24	18:24	
	W 18	3:48	10:20	16:17	22:40		4.0	14.2	3.0	14.5		15.6	2.3	16.4	0.3		
N		4.3	13.2	4.8	13.3	S 19	5:45	12:07	18:07	...	E	W 19	0:50	6:40	13:05	19:05	
	Th 19	4:40	11:07	17:05	23:30		3.8	15.1	1.8	...			16.4	1.3	17.2	-0.4	
		4.0	13.7	4.0	13.9	●	M 20	0:35	6:25	12:48		18:47	Th 20	1:30	7:17	13:44	19:45
	F 20	5:25	11:52	17:48	...			15.3	2.5	16.0		0.8		16.9	0.7	17.6	-0.7
		3.5	14.3	3.1	...	Tu 21	1:16	7:04	13:30	19:29		F 21	2:10	7:56	14:27	20:25	
S	S 21	0:15	6:10	12:34	18:28			16.0	1.8	16.5	0.0	P		17.0	0.4	17.5	-0.6
		14.5	3.1	15.0	2.2	W 22	1:48	7:40	14:08	20:08	S 22		2:50	8:37	15:10	21:09	
	S 22	0:58	6:48	13:12	19:10		16.3	1.3	17.0	-0.4			16.7	0.5	16.9	0.0	
		15.1	2.6	15.5	1.4	E	Th 23	2:38	8:18	14:46	20:50		S 23	3:34	9:20	15:55	21:54
	M 23	1:40	7:25	13:50	19:49			16.4	1.1	16.8	-0.3			16.0	0.9	16.0	1.0
A		15.5	2.3	15.8	0.7	D	F 24	3:17	9:00	15:28	21:32	M 24	4:20	10:08	16:48	22:45	
	Tu 24	2:20	8:02	14:29	20:29			16.1	1.1	16.4	0.1		15.1	1.8	15.0	2.1	
		15.6	2.0	16.0	0.3		S 25	4:00	9:39	16:14	22:20	Tu 25	5:18	11:05	17:50	23:41	
	W 25	3:00	8:39	15:07	21:11			15.6	1.5	15.7	0.9		14.2	2.7	14.0	3.3	
		15.6	1.9	15.9	0.3		S 26	4:45	10:25	17:05	23:08	W 26	6:24	12:15	19:02	...	
E	Th 26	3:40	9:16	15:50	21:55			14.8	2.2	14.8	1.9	S		13.6	3.7	13.3	...
		15.4	2.0	15.6	0.5	D	M 27	5:40	11:20	18:05	...		Th 27	1:00	7:38	13:35	20:17
	F 27	4:26	10:00	16:35	22:40			14.0	3.0	13.9	...			4.3	13.2	4.2	13.2
		15.0	2.3	15.0	1.1	P	Tu 28	0:04	6:44	12:26	19:16		F 28	2:20	8:50	14:55	21:24
	S 28	5:14	10:46	17:25	23:30			3.0	13.3	3.3	13.3			4.7	13.4	4.0	13.4
D		14.4	2.7	14.4	1.9	S	W 29	1:12	7:57	13:48	20:33	S 29	3:40	9:52	16:05	22:24	
	S 29	6:07	11:40	18:25	...				4.0	13.1	4.4	13.2		4.2	14.1	3.2	14.1
		13.8	3.3	13.8	...		Th 30	2:32	9:08	15:12	21:40	S 30	4:42	10:48	17:02	23:15	
	M 30	0:26	7:10	12:45	19:34				4.3	13.4	4.1	13.6		3.4	14.9	2.3	14.9
		2.7	13.4	4.0	13.4		F 31	3:50	10:11	16:22	22:44						
	Tu 31	1:34	8:17	14:03	20:48			4.0	14.2	3.3	14.3						
		3.4	13.3	4.3	13.4												

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 8.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0h is midnight, 12h is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.					NOVEMBER.					DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.					W.	Mo.					W.	Mo.						
E	M	1	5:32	11:42	17:46	O	Th	1	0:24	6:25	12:40	18:35	A	S	1	0:37	6:31	12:53	18:43	
			2.4	16.0	1.3				16.2	2.0	16.2	1.0				15.6	2.5	15.5	1.8	
	Tu	2	0:06	6:14	12:25		18:26		F	2	1:02	6:55		13:16	19:10		S	2	1:12	7:00
N	W	3	16:2	1.8	16.6	0.6	A	S	3	1:36	7:28	13:50	19:42	N	M	3	1:44	7:30	14:02	19:47
			0:50	6:50	13:05	19:01				16.1	1.8	15.8	1.2				15.3	1.9	15.1	2.0
	Th	4	1:26	7:22	13:42	19:38			S	4	2:10	7:52	14:22		20:11		Tu	4	2:17	8:00
A	F	5	16.9	1.4	16.8	0.3	N	M	5	15.6	1.9	15.3	1.5	E	W	5	2:47	8:35	15:15	20:51
			2:03	7:52	14:15	20:10				14.9	2.0	14.7	2.0				14.4	1.6	14.5	2.5
	S	6	2:38	8:20	14:49	20:42			Tu	6	3:14	8:52	15:34		21:17		Th	6	3:18	9:14
N	S	7	15.9	1.8	15.6	1.1	C	W	7	14.2	2.0	14.1	2.6	P	F	7	3:55	9:58	16:44	22:12
			3:13	8:48	15:22	21:12				13.5	2.4	13.5	3.3				13.6	1.8	13.6	3.4
	M	8	3:48	9:20	16:00	21:49			Th	8	4:22	10:15	17:07		22:38		S	8	4:38	10:47
C	Tu	9	14.2	2.6	13.9	2.6	E	F	9	12.8	2.8	12.9	3.9	S	S	9	5:54	11:46	18:42	23:02
			4:24	9:55	16:40	22:26				5:10	11:10	18:12	23:34				12.9	2.7	12.9	
	W	10	13.2	3.0	13.0	3.4			S	10	12.2	3.3	12.4		4.6		M	10	0:00	6:58
P	Th	11	5:06	10:40	17:36	23:14	P	S	11	11.8	3.7	12.3		N	Tu	11	1:09	8:00	13:57	20:52
			12.4	3.6	12.3	4.3				0:44	7:39	13:30	20:34				4.5	12.8	3.0	13.4
	F	12	6:00	11:35	18:48				M	12	2:05	8:48	14:42		21:33		W	12	2:26	9:09
E	S	13	5.0	11.4	4.6	12.1	S	Tu	13	5.0	12.9	3.2	13.7	A	Th	13	3:36	10:11	16:07	22:45
			1:36	8:30	14:10	21:14				4.2	14.0	2.3	14.7				3.5	14.5	2.1	15.1
	S	14	5.5	12.0	4.4	12.8			W	14	4:12	10:42	16:38		23:10		F	14	4:36	11:07
N	M	15	5.1	13.0	3.5	13.8	P	Th	15	3.2	15.1	1.4	15.7	S	S	15	5:29	12:00	17:53	23:35
			4:00	10:27	16:20	23:00				5:02	11:30	17:27	23:58				2.5	15.4	1.5	16.0
	Tu	16	4.2	14.2	2.4	14.8			F	16	2.0	16.1	0.6		16.5		S	16	5:29	12:00
C	W	17	4:47	11:12	17:08	23:42	S	S	17	5:48	12:16	18:12		N	M	17	0:23	6:19	12:48	18:42
			3.1	15.4	1.2	15.8				1.1	16.7	0.0					16.7	0.6	16.8	0.5
	Th	18	5:30	11:56	17:52				P	18	0:40	6:33	13:02		18:58		Tu	18	1:09	7:08
P	S	19	2.0	16.4	0.1		A	M	19	17.0	0.3	17.1	-0.2	E	W	19	17.1	0.0	17.0	0.4
			0:22	6:10	12:38	18:36				1:23	7:18	13:48	19:42				17.2	0.2	17.0	0.7
	F	20	16.6	0.9	17.1	-0.5			S	20	17.2	-0.1	17.2		-0.1		Th	20	2:42	8:43
A	Tu	21	1:02	6:52	13:20	19:19	N	W	21	2:08	8:04	14:36	20:28	S	S	21	17.0	-0.1	16.6	1.2
			17.1	0.3	17.4	-0.7				2:56	8:52	15:27	21:17				3:32	9:32	16:06	21:54
	S	22	17.1	0.0	17.2	-0.5			Th	22	16.5	0.3	16.1		1.3		F	21	4:23	10:23
N	M	23	2:26	8:16	14:50	20:44	P	Tu	23	15.7	1.0	15.3	2.3	A	Tu	22	15.7	1.1	15.3	2.9
			16.8	0.1	16.7	0.2				4:42	10:38	17:22	23:10				5:18	11:17	18:00	23:47
	W	24	3:12	9:01	15:38	21:30			F	23	4:22	10:38	17:22		23:10		S	23	6:17	12:14
C	Th	25	16.2	0.6	15.9	1.1	S	S	24	5:45	11:42	18:28		N	M	24	14.1	2.6	14.1	
			4:00	9:50	16:35	22:24				0:20	6:53	12:52	19:37				0:51	7:19	13:16	20:02
	F	26	14.2	2.5	13.9	3.4			Th	25	4:22	13.7	3.3		13.8			4.4	13.6	3.3
P	S	27	6:08	12:00	18:51		E	W	26	1:35	8:01	14:01	20:40	S	W	25	1:58	8:22	14:18	21:00
			13.5	3.4	13.5					4.6	13.7	3.5	13.9				4.8	13.4	3.6	13.6
	Tu	28	0:44	7:22	13:19	20:06			M	27	2:48	9:03	15:05		21:37		Th	26	3:06	9:22
A	W	29	4.5	13.3	3.9	13.5	N	Tu	28	4.5	13.8	3.2	14.2	A	S	27	4.9	13.4	3.6	13.8
			2:08	8:35	14:36	21:12				3:51	9:58	16:00	22:25				4:03	10:15	16:15	22:45
	S	30	4.7	13.6	3.7	13.8			Th	29	4.1	14.2	2.9		14.5		F	28	4:52	11:05
N	M	31	3:24	9:36	15:42	22:06	O	W	30	4:42	10:48	16:50	23:15	N	M	29	4:2	14.0	3.1	14.5
			4.2	14.1	3.1	14.3				5:23	11:33	17:32	23:58				5:32	11:50	17:45	
	Tu	30	4:24	10:28	16:36	22:58			F	31	3.2	15.0	2.1		15.5			3.6	14.5	2.9
E	W	31	3.5	14.8	2.3	15.0	O			6:00	12:15	18:10		N	S	30	0:13	6:07	12:52	18:22
			5:10	11:16	17:20	23:42				2.8	15.3	1.9					14.9	3.0	14.9	2.6
			2.8	15.5	1.7	15.8											0:50	6:40	13:09	18:55
C			5:50	12:00	18:00		A						N			15.1	2.4	15.1	2.4	
			2.3	15.9	1.2															

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 8.5 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.										MARCH.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
Moon.		Day of W. Mo.		Time and Height of High and Low Water.						Moon.		Day of W. Mo.		Time and Height of High and Low Water.						Moon.		Day of W. Mo.		Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
		M	1	0:40	6:10	13:05	18:43			Th	1	1:32	7:06	14:00	19:35	A	Th	1	0:04	5:44	12:34	18:10																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					

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The time used is Greenwich Mean Civil. 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.				MAY.				JUNE.			
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.				
N	S 1	0:35	6:40	18:08	19:04	D	Tu 1	0:54	7:00	18:24	19:25
		3.7	18.7	3.9	18.2			3.3	18.6	4.2	18.6
D	M 2	1:26	7:30	14:00	19:58		W 2	1:53	7:58	14:27	20:22
		4.0	18.2	4.3	18.0			3.4	18.2	4.3	18.5
	Tu 3	2:30	8:25	15:12	20:55		Th 3	3:00	8:57	15:40	21:20
		4.1	17.8	4.6	17.7			3.8	18.2	4.2	18.5
	W 4	3:41	9:28	16:22	21:58		F 4	4:11	10:00	16:47	22:25
		3.9	17.6	4.4	17.9			2.9	18.2	3.6	18.9
	Th 5	4:52	10:34	17:27	23:00		S 5	5:16	11:00	17:48	23:25
		3.8	17.8	3.7	18.4			2.2	18.9	2.7	19.4
	F 6	5:55	11:35	18:26	24:00	E	S 6	6:15	11:59	18:45	24:00
		2.4	18.6	2.7	19.0			1.3	19.5	1.8	19.8
	S 7	0:00	6:52	12:30	19:18		M 7	0:22	7:10	12:52	19:38
		19.3	1.3	19.4	1.8			20.2	0.5	20.2	1.0
E	S 8	0:54	7:42	13:23	20:06		Tu 8	1:15	8:00	13:44	20:25
		20.2	0.4	20.3	0.9			20.8	-0.1	20.8	0.4
O	M 9	1:43	8:30	14:10	20:49		W 9	2:05	8:50	14:30	21:18
		21.0	-0.3	21.0	0.3			21.3	-0.3	21.3	0.1
P	Tu 10	2:30	9:12	14:56	21:30		Th 10	2:54	9:35	15:19	22:00
		21.6	-0.6	21.4	0.1			21.5	-0.3	21.3	0.0
	W 11	3:17	9:55	15:40	22:13		F 11	3:42	10:25	16:06	22:44
		21.8	-0.5	21.8	0.2			21.4	0.1	21.0	0.3
	Th 12	4:00	10:40	16:24	23:00	S	S 12	4:30	11:14	16:52	23:37
		21.8	-0.1	21.1	0.6			20.9	0.8	20.5	0.8
	F 13	4:48	11:26	17:10	23:47		S 13	5:22	12:06	17:44	24:00
		21.3	0.6	20.5	1.2			20.2	1.6	19.8	1.8
S	S 14	5:34	12:17	18:00	24:00		M 14	0:32	6:15	18:04	18:36
		20.5	1.6	19.6	1.8			1.5	19.3	2.5	18.9
C	S 15	0:44	6:27	13:17	18:54	C	Tu 15	1:32	7:12	14:07	19:38
		2.0	19.4	2.6	18.7			2.1	18.4	3.2	18.0
	M 16	1:46	7:26	14:24	19:52		W 16	2:36	8:15	15:13	20:37
		2.8	18.3	3.4	17.7			2.5	17.6	3.5	17.4
	Tu 17	2:55	8:32	15:38	21:00		Th 17	3:40	9:19	16:18	21:40
		3.2	17.4	3.8	17.0			2.6	17.2	3.5	17.1
	W 18	4:06	9:42	16:47	22:10	E	F 18	4:44	10:24	17:18	22:43
		3.1	16.9	3.6	16.8			2.4	17.1	3.8	17.1
	Th 19	5:14	10:54	17:50	23:20		S 19	5:42	11:24	18:14	23:40
		2.7	17.0	3.1	17.1			2.1	17.3	2.9	17.3
	F 20	6:14	11:58	18:45	24:00		S 20	6:35	12:16	19:04	24:00
		2.0	17.4	2.5	17.0			1.8	17.6	2.5	17.0
E	S 21	0:20	7:08	12:53	19:35		M 21	0:32	7:24	13:00	19:48
		17.6	1.5	17.9	2.1			17.6	1.6	17.8	2.3
	S 22	1:08	7:55	13:35	20:20	A	Tu 22	1:15	8:06	13:41	20:30
		18.1	1.1	18.3	1.8			17.9	1.6	18.0	2.3
●	M 23	1:50	8:36	14:14	20:58	●	W 23	1:55	8:45	14:15	21:05
		18.4	1.0	18.5	1.8			18.1	1.9	18.1	2.4
	Tu 24	2:25	9:14	14:45	21:30		Th 24	2:32	9:20	14:48	21:38
		18.7	1.2	18.5	2.1			18.8	2.3	18.3	2.6
A	W 25	2:59	9:49	15:16	22:04		F 25	3:05	9:52	15:20	22:05
		18.8	1.7	18.5	2.4			18.4	2.7	18.5	2.7
	Th 26	3:31	10:20	15:50	22:30	N	S 26	3:40	10:20	15:56	22:38
		18.9	2.3	18.6	2.8			18.7	3.1	18.8	2.8
	F 27	4:05	10:45	16:24	22:57		S 27	4:20	10:50	16:35	23:06
		19.0	2.8	18.8	3.0			18.9	3.4	19.1	2.7
	S 28	4:43	11:18	17:00	23:28		M 28	5:00	11:25	17:20	23:46
		19.1	3.2	18.9	3.1			19.0	3.5	19.3	2.7
N	S 29	5:24	11:48	17:45	24:00		Tu 29	5:46	12:05	18:05	24:00
		19.0	3.6	19.0	3.0			19.1	3.7	19.4	3.0
	M 30	0:06	6:12	12:32	18:32		W 30	0:32	6:36	12:54	18:56
		3.2	18.8	3.9	18.8			2.7	18.8	3.9	19.3
						D	Th 31	1:28	7:30	13:52	19:50
								2.7	18.8	4.0	19.2

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The time used is Greenwich Mean Civil; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.					
Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.				Mo.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
P	S 1	2:58	8:55	15:30	21:16	P	W 1	4:55	10:34	17:28	23:00	O	S 1	6:54	12:27	19:20	
		2.5	18.8	8.6	19.1			8.0	18.0	8.1	18.2			2.3	18.2	1.5	
	M 2	4:05	9:55	16:40	22:18	S	Th 2	6:00	11:38	18:34			S 2	1:00	7:48	13:24	20:14
W		2.5	18.5	8.3	19.0			2.6	18.3	2.3			18.5	1.6	18.9	0.6	
	Tu 3	5:18	10:57	17:46	23:22	F	3	0:08	7:04	12:40	19:34	E	M 3	1:54	8:37	14:14	21:00
		2.2	18.7	2.7	19.0			18.4	1.9	18.8	1.4			19.1	1.1	19.6	0.1
W 4	6:17	12:00	18:50		O	S 4	1:10	8:00	13:38	20:28	Tu 4		2:40	9:20	14:56	21:44	
Th		1.8	19.2	1.9				18.9	1.3	19.4	0.5		19.5	0.9	20.0	0.0	
	Th 5	0:25	7:16	12:57	19:46	S	5	2:05	8:50	14:29	21:16	W	W 5	3:20	10:02	15:34	22:23
		19.3	1.8	19.7	1.1			19.4	0.9	20.0	0.0			19.6	1.0	20.1	0.2
F 6	1:23	8:12	13:51	20:40	M	6	2:56	9:38	15:15	22:04	Th 6		3:57	10:39	16:12	23:02	
O		19.7	0.9	20.1	0.5			19.8	0.8	20.3	-0.1		19.6	1.4	20.0	0.7	
	S 7	2:20	9:05	14:42	21:30	Tu	7	3:42	10:24	15:58	22:48	F	7	4:36	11:16	16:50	23:40
		20.0	0.6	20.4	0.0			19.9	0.9	20.3	0.0			19.2	2.0	19.7	1.5
S 8	3:10	9:55	15:31	22:20	W	8	4:25	11:05	16:40	23:30	S 8		5:12	11:54	17:30		
M		20.2	0.7	20.5	-0.1			19.8	1.3	20.2	0.4		19.0	2.7	19.3		
	M 9	4:00	10:42	16:20	23:10	E	Th 9	5:06	11:50	17:23		S 9	0:20	5:50	12:32	18:10	
		20.1	0.9	20.4	0.1			19.4	1.9	19.8			2.3	18.4	3.4	18.7	
E	Tu 10	4:48	11:31	17:05	23:58	F	10	0:15	5:50	12:32	18:06	A	M 10	1:02	6:35	13:16	18:56
		19.9	1.4	20.1	0.5			1.0	18.9	2.6	19.3			3.1	17.8	4.0	18.1
	W 11	5:35	12:18	17:52		S	11	1:00	6:33	13:18	18:48		Tu 11	1:50	7:25	14:10	19:50
C		19.4	2.0	19.7				1.8	18.2	3.3	18.6	N		3.8	17.5	4.4	17.5
	Th 12	0:46	6:25	13:10	18:40	C	S 12	1:47	7:20	14:10	19:38		W 12	2:45	8:17	15:10	20:44
		1.0	18.7	2.6	19.1			2.6	17.7	3.9	17.9			4.4	17.1	4.6	17.1
A	F 13	1:38	7:14	14:02	19:28	A	M 13	2:40	8:10	15:08	20:29	Th	13	3:50	9:16	16:18	21:47
		1.6	18.2	3.2	18.4			3.3	17.2	4.3	17.3			4.6	16.9	4.4	16.9
	S 14	2:30	8:06	14:58	20:20	Tu	14	3:36	9:04	16:02	21:26		F 14	4:58	10:15	17:20	22:48
S		2.2	17.6	3.7	17.7			3.8	16.7	4.5	16.9	S		4.4	17.0	3.7	17.2
	S 15	3:25	8:56	15:55	21:14	W	15	4:35	10:02	17:04	22:27		S 15	5:50	11:18	18:16	23:48
		2.7	17.1	4.0	17.2			4.0	16.6	4.2	16.8			3.8	17.6	2.9	17.8
M	M 16	4:20	9:54	16:50	22:10	N	Th 16	5:34	10:58	18:00	23:25	M	S 16	6:44	12:12	19:07	
		3.0	16.9	4.0	16.9			3.9	16.8	3.7	17.0			3.0	18.4	1.9	
	Tu 17	5:18	10:48	17:46	23:08	F	17	6:28	11:54	18:52			0:40	7:30	13:01	19:52	
W		3.2	16.8	3.8	16.9			3.4	17.4	3.0			18.6	2.3	19.4	1.1	
	W 18	6:10	11:42	18:40		S	18	0:20	7:15	12:45	19:38	E	Tu 18	1:30	8:12	13:45	20:35
		3.1	17.0	3.4				17.5	3.0	18.1	2.3			19.4	1.5	20.3	0.4
Th 19	0:00	7:00	12:30	19:26	S	19	1:10	8:00	13:32	20:24	W 19		2:12	8:50	14:30	21:13	
N		17.1	3.0	17.4	2.9			18.2	2.5	18.9	1.6	Th		20.3	1.1	21.0	0.0
	F 20	0:52	7:46	13:14	20:10	M	20	1:58	8:40	14:12	21:00		20	2:55	9:28	15:14	21:51
		17.5	2.8	17.9	2.5			18.8	2.1	19.7	1.1			20.8	0.8	21.6	0.0
S	S 21	1:39	8:26	13:56	20:50	Tu	21	2:38	9:16	14:54	21:39	F	21	3:36	10:07	15:56	22:32
		17.9	2.7	18.5	2.1			19.6	1.8	20.4	0.7			20.9	0.9	21.6	0.2
	S 22	2:08	9:05	14:38	21:27	W	22	3:18	9:55	15:34	22:14		P	S 22	4:17	10:48	16:40
M		18.5	2.6	19.1	1.9			20.0	1.6	21.0	0.6			21.0	1.1	21.4	0.8
	M 23	2:58	9:40	15:15	22:00	E	Th 23	4:00	10:28	16:17	22:58	S 23		5:02	11:31	17:24	
		18.9	2.6	19.6	1.6			20.3	1.6	21.2	0.6		20.6	1.6	20.7		
E	Tu 24	3:40	10:12	15:55	22:35	F	24	4:40	11:05	17:00	23:35	M	24	0:02	5:50	12:20	18:15
		19.3	2.6	20.2	1.4			20.4	1.8	21.1	1.0			1.6	19.9	2.4	19:18
	W 25	4:20	10:45	16:35	23:15	S	25	5:25	11:46	17:45			Tu 25	0:56	6:42	13:18	19:10
Th		19.6	2.5	20.6	1.3			20.2	2.2	20.7			2.6	19.0	3.2	18.7	
	Th 26	5:04	11:28	17:20	23:54	S	26	0:20	6:13	12:35	18:34	W		2:01	7:40	14:30	20:13
		19.8	2.6	20.7	1.4			1.6	19.7	2.7	20.0			3.4	18.1	3.7	17.6
F 27	5:48	12:08	18:08		P	M 27	1:13	7:05	13:34	19:30	Th 27		3:15	8:44	15:50	21:24	
D		19.8	2.7	20.5				2.3	19.0	3.3	19.1	F		4.0	17.2	3.7	17.1
	S 28	0:40	6:38	12:56	18:59	Tu	28	2:13	8:00	14:41	20:26		28	4:30	9:55	17:02	22:35
		1.7	19.5	3.1	20.0			3.1	18.3	3.8	18.2			3.8	17.0	3.1	17.1
S	S 29	1:33	7:30	13:55	19:50	S	W 29	3:26	9:04	16:00	21:35	S	29	5:40	11:09	18:08	23:46
		2.1	19.1	3.4	19.4			3.6	17.6	3.8	17.5			3.2	17.2	2.3	17.5
	M 30	2:34	8:26	15:02	20:49	Th	30	4:42	10:13	17:16	22:48		S 30	6:40	12:14	19:05	
E		2.7	18.6	3.8	18.7			3.6	17.4	3.4	17.4			2.5	17.8	1.4	
	Tu 31	3:42	9:28	16:17	21:54	F	31	5:50	11:22	18:22	23:57						
		3.1	18.2	3.7	18.3			3.1	17.6	2.4	17.8						

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OCTOBER.					NOVEMBER.					DECEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.			Moon.	Day of—		Time and Height of High and Low Water.					
	W.	Mo.					W.	Mo.					W.	Mo.						
E	M	1	0:47 18.2	7:32 1.7	13:07 18.6	19:55 0.7	○	Th	1	1:54 18.7	8:38 1.5	14:08 18.8	20:56 1.0	A	S	1	2:04 18.2	8:53 2.1	14:20 18.2	21:10 2.0
	Tu	2	1:36 18.8	8:18 1.2	13:54 19.2	20:40 0.3		F	2	2:30 18.8	9:15 1.7	14:44 18.9	21:32 1.4		S	2	2:36 18.3	9:26 2.4	14:54 18.3	21:42 2.5
	W	3	2:18 19.2	9:00 1.1	14:34 19.5	21:20 0.3		S	3	3:02 18.8	9:48 2.0	15:16 18.9	22:05 2.0	N	M	3	3:10 18.5	10:00 2.5	15:28 18.5	22:13 3.0
	Th	4	2:55 19.3	9:37 1.3	15:10 19.6	21:56 0.7	A	S	4	3:36 18.7	10:20 2.5	15:52 18.9	22:36 2.7		Tu	4	3:42 18.8	10:30 2.7	16:02 18.6	22:42 3.4
	F	5	3:30 19.2	10:12 1.7	15:44 19.5	22:31 1.3		M	5	4:08 18.7	10:50 2.9	16:28 18.7	23:05 3.2		W	5	4:20 19.0	10:58 2.8	16:45 18.7	23:12 3.6
A	S	6	4:04 19.0	10:44 2.3	16:18 19.4	23:06 2.0	N	Tu	6	4:45 18.7	11:20 3.1	17:10 18.7	23:40 3.7		Th	6	5:01 19.3	11:32 2.7	17:26 18.7	23:50 3.8
	S	7	4:40 18.8	11:17 2.8	16:56 19.2	23:40 2.8		W	7	5:28 18.7	12:00 3.3	17:52 18.4			F	7	5:46 19.3	12:12 2.8	18:15 18.7	
	M	8	5:17 18.6	11:51 3.4	17:36 18.8			Th	8	0:20 4.1	6:12 18.6	12:37 3.5	18:40 18.3		S	8	0:31 3.9	6:34 19.3	13:02 2.9	19:06 18.6
	Tu	9	0:16 3.5	5:58 18.2	12:30 3.8	18:22 18.2	☾	F	9	1:10 4.5	7:05 18.4	13:34 3.6	19:36 17.9	☾	S	9	1:30 4.0	7:25 19.1	13:58 2.9	20:00 18.5
	W	10	1:00 4.1	6:45 17.9	13:20 4.1	19:12 17.8		S	10	2:08 4.6	8:00 18.2	14:40 3.6	20:35 17.9	E	M	10	2:30 4.1	8:22 19.0	15:00 2.8	21:00 18.4
N	Th	11	1:52 4.7	7:36 17.6	14:17 4.3	20:10 17.4		S	11	3:17 4.5	8:58 18.2	15:48 3.2	21:35 18.1		Tu	11	3:35 3.9	9:20 19.0	16:08 2.6	22:00 18.5
	F	12	2:58 4.8	8:35 17.4	15:26 4.1	21:11 17.3		M	12	4:24 4.0	10:00 18.6	16:50 2.6	22:35 18.4		W	12	4:41 3.4	10:20 19.1	17:12 2.0	23:00 19.0
	S	13	4:06 4.6	9:37 17.5	16:35 3.6	22:12 17.5	E	Tu	13	5:25 3.2	11:00 19.1	17:50 1.7	23:34 19.2		Th	13	5:43 2.7	11:23 19.4	18:12 1.5	23:56 19.6
	S	14	5:10 4.0	10:39 18.0	17:36 2.7	23:14 18.2		W	14	6:20 2.2	11:56 19.8	18:45 0.9			F	14	6:43 1.8	12:21 19.9	19:10 0.9	
	M	15	6:06 3.0	11:35 18.8	18:30 1.6			Th	15	0:28 20.0	7:12 1.3	12:50 20.5	19:35 0.3	P	S	15	0:54 20.3	7:40 0.9	13:17 20.4	20:05 0.4
E	Tu	16	0:08 19.0	6:56 2.1	12:30 19.8	19:20 0.7	●	F	16	1:20 20.7	8:00 0.6	13:40 21.1	20:24 -0.1		S	16	1:45 20.8	8:30 0.3	14:10 20.8	20:54 0.2
	W	17	1:00 19.8	7:44 1.2	13:20 20.0	20:04 0.1	P	S	17	2:07 21.2	8:46 0.2	14:30 21.4	21:10 -0.2	S	M	17	2:36 21.1	9:20 -0.1	15:02 20.9	21:42 0.3
	Th	18	1:46 20.7	8:25 0.6	14:06 21.3	20:48 -0.3		S	18	2:54 21.4	9:34 0.0	15:16 21.4	21:57 0.0		Tu	18	3:22 21.2	10:10 -0.2	15:50 20.8	22:34 0.6
	F	19	2:30 21.3	9:06 0.3	14:50 21.7	21:29 -0.3	S	M	19	3:40 21.3	10:20 0.1	16:05 21.1	22:44 0.6		W	19	4:12 21.0	11:00 0.0	16:42 20.5	23:22 1.1
	S	20	3:14 21.4	9:47 0.3	15:36 21.7	22:12 0.0		Tu	20	4:26 21.0	11:10 0.6	16:55 20.5	23:35 1.4		Th	20	5:00 20.6	11:52 0.4	17:32 19.8	
P	S	21	3:57 21.4	10:30 0.5	16:19 21.4	22:56 0.7		W	21	5:15 20.3	12:00 1.2	17:46 19.7			F	21	0:15 1.8	5:50 1.9	12:44 1.0	18:25 19.1
	M	22	4:42 20.9	11:18 1.1	17:08 20.7	23:46 1.5		Th	22	0:30 2.3	6:08 19.4	13:00 1.8	18:44 18.8	☽	S	22	1:10 2.5	6:42 19.2	13:40 1.5	19:19 18.4
	Tu	23	5:30 20.0	12:10 1.9	18:00 19.7		☽	F	23	1:35 3.0	7:05 18.5	14:04 2.3	19:42 18.0	E	S	23	2:10 3.1	7:46 18.4	14:40 2.1	20:16 17.7
	W	24	0:43 2.5	6:25 19.0	13:12 2.6	18:57 18.6		S	24	2:40 3.5	8:05 17.8	15:10 2.5	20:50 17.3		M	24	3:11 3.5	8:34 17.7	15:39 2.4	21:15 17.2
	Th	25	1:50 3.4	7:22 18.1	14:21 3.1	20:00 17.7		S	25	3:45 3.7	9:10 17.3	16:17 2.5	21:55 17.1		Tu	25	4:12 3.7	9:34 17.2	16:40 2.5	22:18 17.0
E	F	26	3:01 3.8	8:25 17.3	15:34 3.2	21:10 17.1	E	M	26	4:50 3.4	10:14 17.1	17:16 2.2	23:00 17.3		W	26	5:14 3.5	10:35 17.0	17:39 2.5	23:15 17.0
	S	27	4:12 3.8	9:35 17.0	16:44 2.8	22:20 17.0		Tu	27	5:50 2.9	11:18 17.3	18:12 1.8	23:55 17.5		Th	27	6:10 3.2	11:35 17.0	18:32 2.1	
	S	28	5:20 3.3	10:47 17.1	17:46 2.1	23:30 17.4		W	28	6:42 2.5	12:14 17.6	19:05 1.6		A	F	28	0:10 17.2	7:00 2.9	12:28 17.2	19:22 2.3
	M	29	6:20 2.6	11:50 17.6	18:42 1.5			Th	29	0:45 17.9	7:30 2.2	13:00 17.9	19:50 1.4		S	29	0:55 17.4	7:50 2.6	13:15 17.5	20:06 2.3
	Tu	30	0:26 18.0	7:10 2.0	12:45 18.2	19:30 1.0	○	F	30	1:26 18.0	8:14 2.0	13:42 18.0	20:30 1.6	○	S	30	1:36 17.7	8:30 2.4	13:55 17.7	20:46 2.5
	W	31	1:14 18.4	7:57 1.6	13:31 18.6	20:15 0.8								N	M	31	2:12 18.0	9:05 2.4	14:35 17.9	21:20 2.7

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 10.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil: 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



APRIL.					MAY.					JUNE.				
Day of— W. Mo.	Time and Height of High and Low Water.				Day of— W. Mo.	Time and Height of High and Low Water.				Day of— W. Mo.	Time and Height of High and Low Water.			
N S 1	2:58 16.4	10:37 3.3	15:15 15.9	22:58 3.4	D Tu 1	3:15 16.0	10:58 3.4	15:42 15.8	22:25 3.3	F 1	0:04 2.9	5:14 15.5	12:29 3.3	17:48 15.8
M 2	3:42 15.7	11:24 3.7	16:12 15.1	23:50 3.8	W 2	4:18 15.4	11:53 3.7	16:54 15.2		E S 2	1:01 2.8	6:35 15.5	13:31 3.2	19:07 16.1
Tu 3	4:48 14.9	12:22 4.1	17:30 14.5		Th 3	0:25 3.6	5:44 14.9	12:56 3.9	18:25 15.1	S 3	2:06 2.6	7:46 16.1	14:38 2.9	20:14 16.8
W 4	0:52 4.1	6:23 14.5	13:26 4.4	19:07 14.6	F 4	1:31 3.5	7:12 15.2	14:04 8.7	19:43 15.8	M 4	3:11 2.0	8:47 17.0	15:42 2.2	21:12 17.7
Th 5	2:01 4.1	7:48 15.0	14:39 4.0	20:20 15.5	S 5	2:40 2.9	8:20 16.2	15:12 2.8	20:47 17.0	Tu 5	4:15 1.3	9:40 17.9	16:46 1.4	22:02 18.5
F 6	3:13 3.2	8:53 16.2	15:47 8.0	21:19 17.0	E S 6	3:44 1.9	9:12 17.4	16:15 1.8	21:20 18.2	P W 6	5:15 0.5	10:28 18.6	17:43 0.6	22:49 19.0
S 7	4:20 2.0	9:46 17.5	16:50 1.6	22:07 18.3	M 7	4:45 0.8	10:05 18.5	17:13 0.7	22:25 19.2	Th 7	6:10 0.0	11:13 19.0	18:35 0.1	23:35 19.1
E S 8	5:18 0.6	10:30 18.7	17:44 0.4	22:50 19.4	P Tu 8	5:40 -0.2	10:48 19.3	18:05 -0.1	23:09 19.7	S F 8	7:00 -0.2	11:59 18.9	19:25 -0.1	
○ M 9	6:08 -0.5	11:12 19.6	18:30 -0.4	23:32 20.2	W 9	6:29 -0.7	11:32 19.7	18:58 -0.5	23:52 19.9	S 9	0:20 1.0	7:48 18.9	12:42 0.0	20:12 0.1
P Tu 10	6:53 -1.0	11:53 20.0	19:14 -0.8		Th 10	7:18 -0.7	12:15 19.7	19:39 -0.4		S 10	1:04 18.4	8:35 0.3	13:25 18.1	21:00 0.4
W 11	0:12 20.4	7:37 -1.1	12:34 20.1	19:58 -0.7	F 11	0:35 19.6	8:02 -0.5	12:56 19.3	20:25 -0.1	M 11	1:50 17.7	9:22 1.0	14:11 17.4	21:48 1.0
Th 12	0:52 20.2	8:20 -0.8	13:13 19.6	20:42 -0.3	S S 12	1:18 19.0	8:49 0.2	13:40 18.5	21:12 0.5	Tu 12	2:36 16.7	10:10 1.8	15:00 16.5	22:36 1.9
F 13	1:35 19.5	9:06 -0.2	13:56 18.8	21:29 0.5	S 13	2:03 18.1	9:39 1.0	14:25 17.5	22:05 1.3	W 13	3:23 15.7	10:58 2.6	16:00 15.5	23:26 2.5
S S 14	2:18 18.5	9:55 0.8	14:42 17.6	22:18 1.4	M 14	2:54 16.9	10:30 1.9	15:20 16.2	22:55 2.3	Th 14	4:40 14.9	11:50 3.3	17:10 14.8	
☾ S 15	3:10 17.2	10:45 2.0	15:38 16.2	23:11 2.5	☾ Tu 15	3:58 15.6	11:21 3.0	16:30 15.1	23:50 3.0	E F 15	0:18 3.0	5:53 14.3	12:43 3.8	18:22 14.5
M 16	4:14 15.7	11:41 3.1	16:52 14.9		W 16	5:17 14.6	12:19 3.7	17:53 14.4		S 16	1:15 3.4	7:02 14.2	13:42 4.0	19:15 14.6
Tu 17	0:11 3.4	5:43 14.4	12:44 3.9	18:25 14.0	Th 17	0:52 3.5	6:40 14.2	13:25 3.9	19:10 14.3	S 17	2:17 3.4	8:00 14.5	14:45 3.8	20:20 15.0
W 18	1:19 3.9	7:12 14.1	13:59 4.0	19:43 14.3	E F 18	2:00 3.4	7:45 14.5	14:35 3.6	20:10 14.9	A M 18	3:15 3.1	8:54 15.1	15:45 3.4	21:11 15.5
Th 19	2:38 8.4	8:18 14.7	15:18 3.3	20:45 15.1	S 19	3:09 2.8	8:42 15.2	15:40 2.9	21:03 15.7	Tu 19	4:15 2.7	9:35 15.5	16:43 2.9	21:42 15.9
F 20	3:52 2.5	9:16 15.6	16:27 2.3	21:37 16.1	S 20	4:10 2.1	9:28 15.9	16:40 2.3	21:46 16.3	W 20	5:07 2.8	10:13 16.0	17:32 2.5	22:30 16.3
E S 21	4:54 1.5	10:01 16.4	17:22 1.4	22:18 16.7	M 21	5:05 1.5	10:09 16.3	17:29 1.8	22:25 16.6	● Th 21	5:51 2.2	10:50 16.3	18:14 2.4	23:05 16.6
S 22	5:43 0.8	10:40 16.8	18:05 0.9	22:57 17.1	A Tu 22	5:49 1.4	10:47 16.5	18:09 1.7	23:00 16.7	N F 22	6:30 2.1	11:23 16.7	18:47 2.4	23:38 16.8
● M 23	6:23 0.5	11:15 16.9	18:42 1.0	23:29 17.2	● W 23	6:27 1.5	11:19 16.5	18:44 2.0	23:32 16.8	S 23	7:02 2.3	11:55 16.9	19:20 2.4	
Tu 24	6:57 0.8	11:46 16.9	19:12 1.3	23:58 17.1	Th 24	6:58 1.8	11:48 16.6	19:12 2.3		S 24	0:12 17.0	7:36 17.0	12:38 2.4	19:55 2.3
A W 25	7:25 1.4	12:12 16.9	19:38 2.0		F 25	0:00 16.9	7:26 2.3	12:15 16.9	19:40 2.6	M 25	0:45 17.3	8:14 2.5	13:00 17.6	20:32 2.2
Th 26	0:25 17.2	7:52 2.0	12:38 16.9	20:04 2.4	N S 26	0:30 17.1	7:55 2.7	12:45 17.1	20:12 2.7	Tu 26	1:20 17.4	8:51 2.4	13:38 17.7	21:15 2.0
F 27	0:51 17.2	8:19 2.5	13:05 17.1	20:32 2.7	S 27	1:00 17.1	8:27 2.8	13:17 17.2	20:48 2.7	W 27	2:00 17.3	9:36 2.4	14:20 17.6	22:00 2.0
S 28	1:18 17.2	8:50 2.8	13:33 17.1	21:06 2.8	M 28	1:34 17.1	9:09 2.9	13:50 17.2	21:30 2.7	Th 28	2:44 17.1	10:21 2.4	15:07 17.2	22:48 2.1
N S 29	1:50 17.1	9:27 2.9	14:08 16.9	21:47 2.9	Tu 29	2:12 16.9	9:50 2.9	14:34 16.9	22:16 2.7	☾ F 29	3:38 16.6	11:10 2.5	16:05 16.7	23:40 2.2
M 30	2:28 16.7	10:10 3.1	14:48 16.4	22:33 3.1	W 30	3:00 16.5	10:40 3.1	15:24 16.4	23:06 2.7	S 30	4:42 16.1	12:02 2.9	17:15 16.3	
					☾ Th 31	3:59 15.9	11:30 3.2	16:30 16.0						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 0.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.					
Mo.	Day of— W. Mo.	Time and Height of High and Low Water.				Mo.	Day of— W. Mo.	Time and Height of High and Low Water.				Mo.	Day of— W. Mo.	Time and Height of High and Low Water.			
P	S 1	0:35 2.5	6:02 15.7	13:05 3.0	18:38 16.1	P	W 1	2:24 3.0	8:05 15.5	14:58 3.2	20:35 16.0	O	S 1	4:40 1.8	9:52 16.5	17:12 1.3	22:17 17.0
	M 2	1:40 2.5	7:18 15.8	14:10 3.0	19:48 16.4	S	Th 2	3:38 2.5	9:10 16.2	16:10 2.3	21:37 16.7		S 2	5:40 0.9	10:38 17.3	18:05 0.8	23:00 17.5
	Tu 3	2:46 2.3	8:24 16.4	15:18 2.6	20:51 17.0	F 3	4:48 1.6	10:01 17.0	17:20 1.8	22:25 17.3	M 3		6:30 0.3	11:20 17.7	18:50 0.0	23:40 17.6	
S	W 4	3:52 1.9	9:23 17.1	16:25 1.9	21:45 17.6	O	S 4	5:50 0.8	10:50 17.5	18:15 0.5	23:13 17.6	E	Tu 4	7:09 0.1	11:58 17.8	19:27 0.0	
	Th 5	4:58 1.1	10:12 17.8	17:28 1.1	22:35 18.1	S 5	6:40 0.3	11:34 17.8	19:08 0.2	23:55 17.7	W 5		0:16 17.5	7:45 0.4	12:32 17.7	20:01 0.4	
	F 6	5:57 0.5	11:00 18.2	18:24 0.4	23:22 18.3	M 6	7:25 0.2	12:15 17.8	19:46 0.2		Th 6		0:48 17.3	8:16 1.0	13:02 17.5	20:33 1.2	
C	S 7	6:50 0.2	11:45 18.2	19:13 0.2		Tu 7	0:35 17.5	8:05 0.5	12:52 17.7	20:25 0.5	A	F 7	1:20 17.0	8:48 1.8	13:32 17.3	21:05 1.9	
	S 8	0:07 18.0	7:35 -0.2	12:28 18.0	20:00 0.3	W 8	1:12 17.2	8:42 1.2	13:30 17.3	21:02 1.0		S 8	1:50 16.6	9:20 2.6	14:02 16.9	21:40 2.6	
	M 9	0:50 17.7	8:20 0.7	13:10 17.6	20:42 0.7	E	Th 9	1:49 16.8	8:17 2.2	14:05 17.0		21:40 1.7	S 9	2:20 16.3	9:55 3.2	14:35 16.4	22:18 3.2
E	Tu 10	1:32 17.1	9:08 1.2	13:52 17.2	21:28 1.2	F 10	2:24 16.2	9:56 2.5	14:40 16.5	22:19 2.5	N	M 10	2:55 15.7	10:33 3.7	15:15 15.7	22:58 3.8	
	W 11	2:15 16.5	9:48 1.9	14:35 16.5	22:10 1.8	S 11	3:01 15.7	10:35 3.2	15:21 15.8	22:58 3.2		Tu 11	3:40 15.0	11:18 4.2	16:10 14.9	23:46 4.3	
	Th 12	3:00 15.8	10:30 2.6	15:22 15.9	22:55 2.5	C	S 12	3:50 15.0	11:15 8.8	16:15 15.1		23:42 3.8	W 12	4:45 14.2	12:10 4.6	17:25 14.2	
C	F 13	3:52 15.1	11:13 3.3	16:17 15.2	23:40 3.1	A	M 13	4:45 14.3	12:02 4.4	17:17 14.4		Th 13	0:42 4.6	6:13 13.8	13:11 4.7	18:57 14.1	
	S 14	4:53 14.4	12:00 3.9	17:20 14.6		Tu 14	0:32 4.2	6:00 13.8	12:55 4.7	18:35 14.1	F	F 14	1:50 4.6	7:32 14.2	14:20 4.3	20:08 14.8	
	S 15	0:30 3.7	6:02 14.0	12:51 4.4	18:32 14.3	W 15	1:30 4.5	7:15 13.8	13:58 4.7	19:45 14.3		S 15	2:58 4.0	8:37 15.3	15:27 3.4	21:06 16.0	
A	M 16	1:25 3.9	7:10 13.9	13:50 4.5	19:25 14.4	N	Th 16	2:32 4.3	8:18 14.4	15:02 4.3		20:43 15.1	S 16	4:00 2.9	9:28 16.6	16:31 2.1	21:50 17.2
	Tu 17	2:32 4.0	8:06 14.3	14:50 4.3	20:29 14.9	F 17	3:35 3.7	9:11 15.4	16:05 3.4	21:38 16.0	M	M 17	5:00 1.7	10:12 18.0	17:25 0.7	22:32 18.4	
	W 18	3:22 3.7	8:59 15.0	15:50 3.8	21:18 15.5	S 18	4:37 2.7	9:53 16.5	17:05 2.2	22:16 17.0		Tu 18	5:48 0.7	10:52 19.1	18:10 -0.1	23:13 19.3	
Th 19	4:20 3.2	9:40 15.7	16:47 3.1	22:00 16.2	S 19	5:30 2.0	10:36 17.5	17:52 1.5	22:56 17.8	E		W 19	6:30 -0.1	11:30 19.9	18:52 -0.5	23:50 19.8	
N	F 20	5:12 2.6	10:21 16.4	17:36 2.4	22:40 16.7	●	M 20	6:14 1.2	11:15 18.4	18:36 0.8	23:34 18.5	P	Th 20	7:11 -0.4	12:10 20.3	19:34 -0.7	
	S 21	5:58 2.1	10:58 17.0	18:20 2.0	23:17 17.2	Tu 21	6:55 0.8	11:52 19.1	19:17 0.3		F 21		0:28 19.9	7:52 -0.3	12:48 20.2	20:15 -0.6	
	S 22	6:38 1.9	11:37 17.7	18:58 1.7	23:53 17.7	W 22	0:12 19.0	7:35 0.5	12:30 19.4	19:57 0.1	S 22		1:07 19.6	8:35 0.0	13:28 19.7	21:00 0.0	
E	M 23	7:16 1.8	12:12 18.1	19:37 1.5		E	Th 23	0:50 19.2	8:15 0.5	13:08 19.6	20:38 0.2	M	S 23	1:50 18.9	9:20 0.6	14:10 18.8	21:48 0.9
	Tu 24	0:29 18.0	7:54 1.6	12:47 18.5	20:16 1.4	F 24	1:28 19.0	8:57 0.6	13:48 19.2	21:20 0.4	M 24		2:34 17.9	10:09 1.5	14:58 17.5	22:36 1.9	
	W 25	1:05 18.2	8:34 1.4	13:25 18.6	20:58 1.1	S 25	2:08 18.5	9:41 1.0	14:30 18.5	22:08 1.0	Tu 25		3:28 16.5	11:00 2.5	15:58 16.1	23:32 3.0	
E	Th 26	1:46 18.1	9:16 1.5	14:05 18.4	21:44 1.1	S 26	2:54 17.6	10:28 1.7	15:18 17.5	22:55 1.8	D	W 26	4:38 15.1	12:00 3.5	17:25 14.7		
	F 27	2:28 17.8	10:03 1.6	14:50 18.0	22:30 1.5	P	M 27	3:39 16.5	11:20 2.5	16:20 16.3		23:50 2.7	Th 27	0:37 3.8	6:15 14.1	13:10 4.0	19:01 14.2
	S 28	3:17 17.1	10:50 2.1	15:43 17.2	23:20 1.9	Tu 28	5:02 15.3	12:17 3.4	17:43 15.2			F 28	1:52 8.9	7:40 14.3	14:31 3.5	20:15 14.9	
D	S 29	4:15 16.3	11:42 2.6	16:47 16.4		S	W 29	0:54 3.4	6:32 14.5	13:25 3.4	19:15 14.8	S	S 29	3:15 3.1	8:43 15.3	15:50 2.3	21:15 15.9
	M 30	0:12 2.5	5:30 15.5	12:40 3.2	18:07 15.7	Th 30	2:09 3.6	7:52 14.7	14:44 3.5	20:26 15.3	S 30		4:26 2.0	9:37 16.4	16:56 1.2	22:02 16.8	
	Tu 31	1:15 2.9	6:52 15.2	13:45 3.4	19:28 15.6	F 31	3:25 3.0	8:59 15.6	16:03 2.4	21:28 16.2							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 9.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.				NOVEMBER.				DECEMBER.			
Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.	Moon.	Day of—		Time and Height of High and Low Water.
	W.	Mo.			W.	Mo.			W.	Mo.	
E	M	1	5:22 10:22 17:45 22:42 0.8 17.5 0.3 17.7	○	Th	1	6:22 11:12 18:38 23:27 0.8 17.7 0.6 17.4	A	S	1	6:30 11:20 18:45 23:35 1.8 17.0 1.8 16.8
	Tu	2	6:09 11:00 18:28 23:20 0.2 18.0 -0.2 17.9		F	2	6:55 11:42 19:10 23:58 1.2 17.6 1.4 17.2		S	2	7:00 11:49 19:15 23:40 2.3 16.9 2.4 16.7
	W	3	6:47 11:35 19:04 23:52 0.2 18.1 0.0 17.8		S	3	7:23 12:10 19:37 24:00 2.0 17.2 2.1 17.0	N	M	3	8:04 12:28 19:45 24:12 16.8 2.8 16.9 3.0
	Th	4	7:20 12:07 19:35 24:20 0.6 17.9 0.7 17.7	A	S	4	8:04 12:40 20:06 24:10 17.0 2.7 17.1 2.8		Tu	4	8:31 12:58 20:15 24:20 16.9 3.1 17.0 3.2
	F	5	8:22 12:48 20:08 25:00 17.5 1.6 17.7 1.5		M	5	8:50 13:19 20:35 24:40 16.9 3.1 17.0 3.2		W	5	9:00 13:10 20:45 24:50 17.1 3.1 16.9 3.2
A	S	6	9:50 13:16 20:32 25:32 17.2 2.3 17.4 2.4	N	Tu	6	9:18 13:40 21:00 25:10 16.8 3.3 16.7 3.0		Th	6	9:34 13:10 21:05 25:30 17.0 3.0 16.7 3.3
	S	7	1:15 8:45 13:30 21:05 16.9 2.9 17.0 3.0		W	7	1:50 9:30 14:10 21:52 16.5 3.4 16.3 3.7		F	7	2:12 9:55 14:35 22:15 16.8 3.0 16.4 3.3
	M	8	1:44 9:19 14:00 21:40 16.5 3.3 16.6 3.5		Th	8	2:30 10:15 14:55 22:39 16.0 3.6 15.6 3.9		S	8	2:59 10:43 15:28 23:05 16.4 3.0 15.9 3.4
	Tu	9	2:17 9:57 14:35 22:20 16.1 3.7 16.0 3.8	☾	F	9	3:20 11:06 15:57 23:32 15.5 3.8 15.0 4.1	☾	S	9	3:56 11:35 16:38 23:40 16.0 3.1 15.4 3.7
	W	10	2:55 10:42 15:25 23:09 15.4 4.0 15.2 4.2		S	10	4:28 12:05 17:15 24:00 14.9 3.9 14.6 3.9	E	M	10	4:01 5:10 12:35 17:56 8.5 15.6 3.1 15.3
N	Th	11	3:52 11:33 16:30 23:50 14.7 4.3 14.4 4.5		S	11	5:35 12:56 18:08 24:45 4.2 14.9 3.7 14.9		Tu	11	1:01 6:33 13:38 19:15 3.5 15.8 3.0 15.8
	F	12	5:05 12:10 17:35 24:40 4.6 14.1 4.5 14.1		M	12	1:40 7:20 14:15 19:55 4.0 15.5 3.2 15.9		W	12	2:06 7:44 14:42 20:20 3.8 16.4 2.5 16.6
	S	13	1:10 6:47 13:44 19:30 4.7 14.3 4.3 14.7	E	Tu	13	2:46 8:22 15:18 20:52 3.2 16.6 2.2 17.2		Th	13	3:12 8:47 15:45 21:18 2.2 17.4 1.8 17.7
	S	14	2:20 8:00 14:52 20:32 4.3 15.3 3.4 16.0		W	14	3:47 9:16 16:17 21:41 2.2 18.1 1.2 18.4		F	14	4:15 9:40 16:47 22:05 1.9 18.4 1.0 18.5
	M	15	3:25 8:59 15:55 21:23 3.2 16.8 2.2 17.4		Th	15	4:45 10:01 17:12 22:25 1.2 19.2 0.3 19.3	P	S	15	5:15 10:30 17:44 22:51 1.0 19.1 0.4 19.1
E	Tu	16	4:24 9:43 16:50 22:08 2.0 18.3 1.0 18.7	●	F	16	5:37 10:45 18:08 23:08 0.4 19.9 -0.3 19.9		S	16	6:10 11:13 18:35 23:35 0.4 19.5 0.0 19.4
	W	17	5:16 10:26 17:41 22:50 0.8 19.4 0.0 19.6	P	S	17	6:26 11:28 18:50 23:50 0.0 20.2 -0.4 20.0	S	M	17	7:00 11:58 19:22 24:00 0.0 19.4 0.0 19.4
	Th	18	6:05 11:09 18:26 23:29 0.0 20.2 -0.5 20.2		S	18	7:12 12:10 19:36 24:40 -0.1 20.1 -0.2 20.0		Tu	18	8:20 12:48 20:12 24:10 19.4 -0.1 19.1 0.2
	F	19	6:48 11:48 19:10 24:00 -0.4 20.6 -0.7 20.6	S	M	19	8:32 13:00 20:55 25:20 19.7 0.1 19.5 0.3		W	19	1:04 8:35 13:26 20:58 18.9 0.3 18.5 0.7
	S	20	9:08 12:30 21:28 25:58 20.3 -0.4 20.5 -0.4		Tu	20	1:16 8:47 18:28 21:10 19.1 0.6 18.7 1.0		Th	20	1:48 9:22 14:12 21:47 18.3 0.7 17.5 1.4
S	S	21	9:50 13:15 19:09 20:39 19.8 0.0 19.8 0.2		W	21	2:00 9:38 14:27 22:05 18.1 1.3 17.5 1.9		F	21	2:35 10:12 15:05 22:35 17.3 1.5 16.5 2.3
	M	22	1:30 9:01 13:52 21:28 19.1 0.5 18.8 1.0		Th	22	2:52 10:31 15:25 22:59 16.9 2.1 16.1 2.8	D	S	22	3:29 11:01 16:05 23:25 16.3 2.2 15.5 3.0
	Tu	23	2:15 9:52 14:40 22:20 18.0 1.5 17.5 2.0	D	F	23	3:56 11:26 16:41 23:55 15.6 2.8 15.1 3.5	E	S	23	4:35 11:54 17:20 24:00 15.4 2.9 14.7 3.7
	W	24	3:08 10:46 15:43 23:16 16.6 2.5 16.0 3.1		S	24	5:20 12:27 18:10 24:40 14.8 3.3 14.4 3.9		M	24	5:20 12:22 17:43 24:42 3.7 14.8 3.3 14.3
	Th	25	4:18 11:45 17:07 24:10 15.3 3.3 14.8 3.8		S	25	1:00 6:42 13:35 19:24 3.8 14.6 3.3 14.7		Tu	25	1:19 7:04 13:52 19:40 4.0 14.7 3.4 14.5
E	F	26	5:18 12:48 14:53 19:42 3.8 14.4 3.7 14.3	E	M	26	2:10 7:48 14:45 20:22 3.6 15.1 2.8 15.4		W	26	2:25 8:03 14:59 20:35 3.9 15.0 3.2 15.0
	S	27	1:30 7:20 14:10 19:54 3.9 14.5 3.3 14.9		Tu	27	3:18 8:42 15:48 21:10 2.9 15.9 2.1 16.2		Th	27	3:30 8:57 16:00 21:24 3.5 15.5 2.7 15.6
	S	28	2:50 8:22 15:24 20:53 3.2 15.4 2.3 16.0		W	28	4:18 9:30 16:44 21:53 2.2 16.6 1.5 16.6	A	F	28	4:30 9:41 16:56 22:05 2.9 16.0 2.3 16.0
	M	29	4:00 9:15 16:27 21:40 2.1 16.5 1.3 16.9		Th	29	5:10 10:10 17:32 22:30 1.7 16.9 1.3 16.8	●	S	29	5:21 10:22 17:43 22:42 2.4 16.3 2.0 16.3
	Tu	30	4:55 9:57 17:19 22:20 1.2 17.3 0.6 17.4	○	F	30	5:55 10:46 18:11 23:05 1.6 17.0 1.3 16.8	○	S	30	6:04 10:56 18:21 23:15 2.2 16.5 2.1 16.6
	W	31	5:43 10:37 18:01 22:57 0.7 17.7 0.2 17.5					N	M	31	6:40 11:29 18:55 23:45 2.3 16.7 2.3 16.8

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 9.1 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.										MARCH.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E D	M	1	5:00 2.4	10:25 5.7	17:40 2.2	22:40 4.9				D A	Th	1	4:10 1.6	11:07 5.0	16:45 1.3	23:27 4.5	A	Th	1	3:01 1.0	10:08 5.5	15:25 0.9	22:20 5.2									
	Tu	2	5:22 2.5	11:07 5.1	18:05 2.2	23:20 4.5					F	2	5:00 1.8	11:42 4.6	17:32 1.6			F	2	3:35 1.2	10:34 5.1	16:00 1.1	22:50 4.8									
	W	3	5:50 2.6	11:44 4.6	18:25 2.2						S	3	0:07 4.2	5:46 2.0	12:25 4.1	18:28 1.8		D	S	3	4:20 1.4	11:05 4.6	16:46 1.4	23:25 4.4								
A	Th	4	0:05 4.1	6:20 2.6	12:27 4.2	19:00 2.1				S N	S	4	1:05 4.0	6:48 2.1	18:29 3.6	19:25 1.9	N		S	4	5:10 1.7	11:48 4.1	17:45 1.8									
	F	5	1:05 3.9	6:50 2.5	18:20 3.9	19:30 2.0					M	5	2:32 3.9	7:56 2.2	15:32 8.7	20:29 1.9			M	5	0:15 4.1	6:09 2.0	12:45 3.7	18:48 2.1								
	S	6	2:15 3.9	7:35 2.4	14:46 3.8	20:08 1.8					Tu	6	4:35 4.4	9:06 1.9	17:31 4.4	21:35 1.6		Tu	6	1:28 3.9	7:20 2.2	14:30 8.5	19:55 2.1									
N	S	7	3:57 4.3	8:37 2.1	16:44 4.2	21:10 1.6				W O	W	7	5:52 5.3	10:12 1.5	18:29 5.2	22:40 1.3	O	W	7	3:45 4.1	8:35 2.0	17:13 4.2	21:10 1.9									
	M	8	5:20 4.9	9:40 1.8	17:56 4.8	22:03 1.3					Th	8	6:42 6.2	11:20 0.8	19:11 6.0	23:37 0.9		Th	8	5:28 4.9	9:48 1.6	18:07 5.1	22:14 1.4									
	Tu	9	6:15 5.6	10:36 1.3	18:45 5.4	22:58 1.0					F	9	7:24 6.9	12:15 0.1	19:49 6.5			F	9	6:22 6.1	11:00 0.7	18:52 6.1	23:20 0.7									
O	W	10	7:00 6.3	11:39 0.7	19:25 5.9	23:52 0.8				S E	S	10	0:28 0.5	8:00 7.4	13:02 -0.2	20:21 6.8	E	S	10	7:05 6.9	11:56 0.2	19:30 6.8										
	Th	11	7:37 6.8	12:28 0.3	20:00 6.2						S	11	1:15 0.3	8:35 7.5	13:47 -0.3	20:56 6.9		S	11	0:12 0.3	7:44 7.5	12:45 -0.3	20:05 7.2									
	F	12	0:40 0.6	8:13 7.0	13:15 0.2	20:37 6.3					M	12	1:56 0.3	9:10 7.4	14:29 -0.3	21:30 6.7		M	12	1:00 0.0	8:19 7.8	13:29 -0.5	20:37 7.4									
P	S	13	1:22 0.6	8:50 7.0	14:00 0.1	21:12 6.2				P C	Tu	13	2:37 0.4	9:46 7.0	15:06 0.0	22:03 6.3	C	Tu	13	1:42 -0.1	8:54 7.7	14:08 -0.4	21:11 7.2									
	S	14	2:06 0.7	9:25 6.8	14:40 0.3	21:48 6.0					W	14	3:18 0.7	10:20 6.5	15:45 0.4	22:38 5.8		W	14	2:22 0.0	9:30 7.3	14:47 -0.1	21:45 6.8									
	M	15	2:48 0.9	10:00 6.5	15:24 0.4	22:21 5.6					Th	15	3:55 1.0	10:55 5.9	16:29 0.8	23:15 5.3		Th	15	3:00 0.4	10:04 6.8	15:25 0.4	22:21 6.3									
E	Tu	16	3:30 1.1	10:35 6.1	16:07 0.6	22:55 5.3				C S	F	16	4:43 1.5	11:35 5.2	17:16 1.3		S	F	16	3:40 0.8	10:40 6.0	16:05 0.9	22:55 5.6									
	W	17	4:17 1.4	11:15 5.6	16:55 0.9	23:42 4.9					S	17	0:00 4.8	5:34 1.8	12:25 4.5	18:10 1.8		S	17	4:20 1.3	11:18 5.3	16:48 1.6	23:40 5.0									
	Th	18	5:03 1.7	11:59 5.0	17:47 1.3						S	18	1:00 4.4	6:33 2.2	13:32 4.0	19:06 2.2		S	18	5:10 1.8	12:07 4.5	17:40 2.1										
P	F	19	0:32 4.6	6:02 2.0	12:52 4.5	18:45 1.7				S M	M	19	2:32 4.2	7:40 2.4	16:40 4.1	20:19 2.3	M	M	19	0:32 4.4	6:10 2.2	13:12 3.9	18:48 2.5									
	S	20	1:38 4.3	7:02 2.2	14:10 4.1	19:45 1.8					Tu	20	5:10 4.6	8:58 2.3	17:42 4.8	21:30 2.2		Tu	20	1:54 4.1	7:17 2.5	16:30 4.0	19:52 2.6									
	S	21	3:24 4.5	8:15 2.2	16:33 4.8	20:45 1.8					W	21	6:00 5.4	10:14 1.9	18:27 5.5	22:36 1.8		W	21	4:50 4.4	8:37 2.4	17:25 4.7	21:07 2.5									
S	M	22	5:17 5.0	9:25 1.9	17:48 5.1	21:55 1.6				● E	Th	22	6:40 6.2	11:25 1.3	19:09 6.1	23:33 1.5	● E	Th	22	5:40 5.1	9:55 2.0	18:08 5.4	22:15 2.1									
	Tu	23	6:10 5.8	10:34 1.4	18:40 5.7	22:56 1.3					F	23	7:21 6.8	12:12 0.8	19:45 6.5			F	23	6:20 5.8	10:55 1.4	18:45 5.9	23:08 1.6									
	W	24	6:57 6.5	11:38 1.0	19:25 6.3	23:50 1.1					S	24	0:18 1.1	7:57 7.1	12:52 0.6	20:17 6.6		S	24	6:57 6.5	11:40 0.9	19:21 6.3	23:50 1.2									
E	Th	25	7:38 7.1	12:30 0.6	20:03 6.6					E S	S	25	0:55 0.9	8:27 7.1	13:22 0.4	20:44 6.5	S A	S	25	7:35 6.8	12:15 0.6	19:50 6.6										
	F	26	0:37 1.0	8:14 7.2	13:15 0.3	20:36 6.6					M	26	1:28 1.0	8:54 6.9	13:55 0.5	21:07 6.3		M	26	0:25 0.9	8:02 6.9	12:48 0.5	20:15 6.5									
	S	27	1:16 0.9	8:46 7.2	13:50 0.3	21:07 6.4					Tu	27	1:59 1.0	9:20 6.5	14:23 0.7	21:31 5.9		Tu	27	0:57 0.8	8:26 6.7	13:20 0.5	20:40 6.3									
E	S	28	1:51 1.1	9:16 6.8	14:22 0.5	21:35 6.0				W	W	28	2:30 1.0	9:45 6.0	14:50 0.7	21:53 5.5	A	W	28	1:29 0.8	8:52 6.3	13:50 0.6	21:04 6.0									
	M	29	2:25 1.3	9:44 6.4	14:55 0.7	22:03 5.6									Th	29		2:01 0.7	9:18 5.9	14:19 0.7	21:25 5.7											
	Tu	30	2:59 1.4	10:11 5.9	15:29 0.9	22:25 5.2									F	30		2:35 0.8	9:41 5.5	14:50 0.9	21:51 5.3											
	W	31	3:35 1.5	10:39 5.4	16:05 1.1	22:55 4.8									S	31	3:12 0.9	10:10 5.0	15:32 1.1	22:20 5.0												

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										SEPTEMBER.									
Day of—		Time and Height of High and Low Water.				Time and Height of High and Low Water.				Day of—		Time and Height of High and Low Water.				Time and Height of High and Low Water.			
Moon	W. Mo.										W. Mo.								
S	1	0:43	6:40	12:30	19:00	P	W	1	2:52	8:08	12:14	20:47	S	1	5:59	10:12	18:15	23:00	
		4.6	1.4	4.4	2.0				4.2	1.8	4.7	2.0			5.3	1.8	5.9	1.2	
M	2	1:55	7:48	14:36	20:06	S	Th	2	5:10	9:18	17:37	21:59	○	S	2	6:43	11:10	18:55	
		4.4	1.4	4.6	1.9				4.7	1.7	5.4	1.6			6.0	1.4	6.7		
Tu	3	3:35	8:44	16:32	21:15	W	F	3	6:07	10:24	18:25	23:06		M	3	0:01	7:22	11:58	19:35
		4.5	1.4	5.1	1.6				5.4	1.4	6.3	1.0			0.7	6.5	1.0	7.1	
W	4	5:10	9:46	17:40	22:20	○	S	4	7:00	11:23	19:16			Tu	4	0:31	7:56	12:35	20:10
		5.1	1.1	5.3	1.2				6.1	1.2	6.9				0.4	6.7	0.8	7.2	
Th	5	6:17	10:44	18:38	23:20		S	5	8:06	7:42	12:15	19:56	E	W	5	1:06	8:27	13:07	20:36
		5.7	0.9	6.6	0.7				0.6	6.5	0.9	7.3			0.3	6.7	0.7	7.1	
F	6	7:10	11:40	19:25			M	6	0:52	8:19	12:57	20:28		Th	6	1:35	8:55	13:40	21:05
		6.3	0.7	7.2					0.4	6.7	0.9	7.3			0.4	6.5	0.8	6.7	
S	7	0:16	7:54	12:30	20:07		Tu	7	1:35	8:52	13:37	21:04		F	7	2:05	9:19	14:11	21:30
		0.4	6.7	0.6	7.4				0.3	6.7	0.9	7.1			0.6	6.1	0.9	6.2	
S	8	1:06	8:30	13:15	20:45		W	8	2:08	9:25	14:10	21:31		S	8	2:35	9:42	14:41	21:54
		0.2	6.7	0.8	7.3				0.5	6.4	1.0	6.7			0.8	5.6	1.1	5.6	
M	9	1:55	9:12	14:00	21:22	E	Th	9	2:40	9:52	14:41	22:03		S	9	3:02	10:06	15:17	22:21
		0.3	6.6	1.0	7.0				0.7	5.9	1.2	6.2			1.1	5.2	1.3	5.0	
Tu	10	2:35	9:49	14:35	21:57		F	10	3:11	10:18	15:15	22:30	A	M	10	3:40	10:35	15:52	22:58
		0.6	6.2	1.4	6.5				0.9	5.4	1.4	5.6			1.3	4.7	1.5	4.6	
W	11	3:10	10:22	15:13	22:30		S	11	3:45	10:43	15:58	22:55		Tu	11	4:13	11:09	16:41	23:30
		0.3	5.6	1.6	6.0				1.2	5.0	1.6	5.1			1.6	4.4	1.8	4.1	
Th	12	3:46	10:54	15:50	23:02	C	S	12	4:22	11:12	16:34	23:27	N	W	12	4:40	11:52	17:40	
		1.1	5.1	1.9	5.5				1.4	4.6	1.8	4.6			1.9	4.1	2.1		
F	13	4:25	11:26	16:30	23:35	A	M	13	5:08	11:52	17:25			Th	13	5:08	12:10	18:00	18:50
		1.3	4.7	2.1	5.0				1.6	4.3	2.0				3.7	2.2	3.9	2.2	
S	14	5:10	12:02	17:15			Tu	14	5:06	6:52	12:42	18:18		F	14	1:43	7:24	14:46	20:10
		1.5	4.4	2.2					4.1	1.9	4.0	2.2			3.5	2.3	3.9	2.1	
S	15	0:15	5:58	12:47	18:06		W	15	1:10	7:00	13:51	19:25		S	15	2:12	8:08	15:58	21:33
		4.5	1.8	4.1	2.3				3.7	2.0	3.9	2.2			3.9	2.0	4.6	1.7	
M	16	1:00	6:45	13:40	19:05	N	Th	16	2:35	8:30	15:46	20:35		S	16	5:40	9:50	17:58	22:30
		4.1	1.9	4.0	2.4				3.6	2.0	4.1	2.1			4.8	1.7	5.6	1.0	
Tu	17	2:04	7:42	15:02	20:07		F	17	4:59	9:02	17:25	21:47		M	17	6:25	10:32	18:40	23:27
		3.9	1.9	4.2	2.2				4.1	1.8	4.9	1.7			5.7	1.1	6.5	0.3	
W	18	3:45	8:38	16:38	21:05		S	18	6:02	10:06	18:17	22:48	●	Tu	18	7:05	11:45	19:19	
		3.9	1.7	4.6	1.9				4.9	1.5	5.8	1.1			6.5	0.5	7.2		
Th	19	5:20	9:32	17:45	22:08		S	19	6:50	11:06	19:08	23:45	E	W	19	0:15	7:40	12:30	19:57
		4.4	1.6	5.3	1.5				5.6	1.1	6.6	0.5			-0.2	7.0	0.0	7.6	
F	20	6:21	10:30	18:36	23:08	●	M	20	7:30	12:00	19:40			Th	20	0:59	8:18	13:13	20:30
		5.0	1.3	5.9	1.1				6.2	0.7	7.1				-0.4	7.3	-0.1	7.6	
S	21	7:07	11:22	19:20			Tu	21	8:34	8:02	12:46	20:16		F	21	1:38	8:47	13:53	21:06
		5.5	1.1	6.5					0.1	6.6	0.4	7.3			-0.4	7.2	-0.1	7.3	
S	22	0:00	7:45	12:11	19:56		W	22	1:19	8:36	13:30	20:50	P	S	22	2:16	9:22	14:31	21:42
		0.7	5.9	0.9	6.8				-0.3	6.8	0.3	7.3			-0.1	6.9	0.2	6.8	
M	23	0:47	8:20	13:00		E	Th	23	2:00	9:08	14:06	21:25		S	23	2:53	9:58	15:10	22:17
		0.4	6.1	0.8	6.8				-0.1	6.7	0.4	7.0			0.3	6.4	0.6	6.1	
Tu	24	1:32	8:55	13:39	21:05		F	24	2:39	9:48	14:49	22:00		M	24	3:34	10:31	15:51	22:55
		0.3	6.1	0.8	6.8				0.0	6.4	0.5	6.6			0.8	5.8	1.1	5.4	
W	25	2:15	9:26	14:22	21:40		S	25	3:18	10:15	15:26	22:35	D	Tu	25	4:15	11:13	16:40	23:40
		0.3	6.0	0.8	6.5				0.4	6.0	0.9	6.0			1.4	5.2	1.6	4.7	
Th	26	2:55	10:00	15:03	22:13		S	26	3:59	10:51	16:10	23:10		W	26	5:05	12:01	17:38	
		0.4	5.7	1.0	6.1				0.8	5.5	1.3	5.3			2.0	4.6	2.1		
F	27	3:38	10:33	15:41	22:50	D	M	27	4:43	11:31	16:50	23:55		Th	27	0:40	6:10	13:15	18:50
		0.6	5.4	1.2	5.7	P			1.3	5.0	1.7	4.7			4.0	2.5	4.2	2.3	
S	28	4:22	11:12	16:34	23:31		Tu	28	5:35	12:22	18:00			F	28	2:38	7:25	16:20	20:16
		0.8	5.1	1.5	6.2				1.7	4.5	2.1				3.9	2.7	4.3	2.3	
S	29	5:12	11:53	17:21		S	W	29	0:58	6:37	13:38	19:10		S	29	5:00	8:52	17:15	21:50
		1.2	4.8	1.6					4.2	2.1	4.2	2.3			4.6	2.4	6.0	1.9	
M	30	0:18	6:07	12:55	18:28		Th	30	2:38	7:47	16:22	20:27		S	30	5:48	10:12	17:57	22:50
		4.7	1.5	4.5	2.0				4.0	2.3	4.4	2.2			5.3	2.1	5.6	1.3	
Tu	31	1:20	7:07	14:10	19:36		F	31	5:11	9:00	17:30	21:47							
		4.3	1.7	4.4	2.2				4.5	2.2	5.2	1.8							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 13:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.												
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.								
	W. Mo.						W. Mo.						W. Mo.									
E	M	1	6:20 5.9	10:59 1.5	18:34 6.4	23:35 0.8	C	Th	1	7:04 6.4	11:35 1.0	19:18 6.4	23:52 0.7	A	S	1	7:10 6.3	11:41 1.0	19:28 5.9	23:51 0.9		
	Tu	2	7:00 6.4	11:35 1.1	19:12 6.8			F	2	7:33 6.5	12:10 0.8	19:49 6.3			S	2	7:34 6.4	12:21 0.8	19:59 5.8			
	W	3	0:00 0.5	7:32 6.7	12:08 0.8	19:45 6.9		A	S	3	0:25 0.7	7:59 6.4	12:45 0.7		20:15 6.1	N	M	3	0:29 0.9	8:10 6.3	13:00 0.8	20:28 5.6
	Th	4	0:30 0.4	8:00 6.7	12:40 0.7	20:12 6.8			S	4	0:57 0.7	8:23 6.2	13:17 0.7		20:41 5.7		Tu	4	1:05 1.0	8:39 6.1	13:38 0.7	20:59 5.3
	F	5	1:00 0.5	8:23 6.5	13:12 0.8	20:38 6.4			M	5	1:28 0.8	8:50 5.9	13:52 0.8		21:08 5.3		W	5	1:42 1.0	9:07 5.8	14:13 0.8	21:27 5.1
A	S	6	1:30 0.6	8:48 6.1	13:43 0.8	21:04 5.9	N	Tu	6	2:00 0.9	9:18 5.5	14:30 0.9	21:36 4.9	Th	6	2:17 1.2	9:38 5.5	14:56 0.9	22:00 4.8			
	S	7	1:58 0.8	9:12 6.7	14:15 0.9	21:28 5.6		W	7	2:35 1.2	9:49 5.2	15:00 1.0	22:12 4.6		F	7	2:56 1.4	10:10 5.3	15:38 1.0	22:37 4.5		
	M	8	2:26 1.0	9:37 6.3	14:45 1.0	21:54 4.9		Th	8	3:15 1.4	10:18 4.8	15:50 1.2	22:50 4.2		S	8	3:47 1.6	10:48 5.0	16:28 1.2	23:21 4.3		
	Tu	9	3:00 1.2	10:02 4.9	15:28 1.2	22:25 4.5		C	F	9	4:00 1.7	11:05 4.5	16:45 1.5		23:40 4.0	C	S	9	4:40 1.9	11:35 4.7	17:30 1.4	
	W	10	3:42 1.5	10:37 4.6	16:12 1.4	23:00 4.0			S	10	5:03 2.1	11:57 4.3	17:49 1.8				E	M	10	0:20 4.2	5:45 2.1	12:37 4.5
Th	11	4:28 1.9	11:25 4.3	17:05 1.8	23:55 3.7	S	11		0:46 3.8	6:13 2.3	18:13 4.2	19:10 1.8	Tu	11	1:30 4.2		6:55 2.0	13:56 4.4	19:46 1.4			
N	F	12	5:30 2.2	12:20 4.0	18:20 2.0		E	M	12	2:17 4.0	7:35 2.2	14:53 4.4	20:20 1.4	W	12	3:00 4.5	8:08 1.9	15:35 4.6	20:59 1.2			
	S	13	1:17 3.6	6:50 2.3	13:56 4.0	19:32 1.9		Tu	13	4:05 4.7	8:50 1.7	16:35 5.1	21:30 0.9		Th	13	4:33 5.2	9:14 1.4	17:05 5.3	22:12 0.8		
	S	14	3:25 3.9	8:10 2.2	16:02 4.5	20:56 1.5		W	14	5:14 5.5	9:58 1.2	17:39 5.9	22:27 0.4		F	14	5:40 6.0	10:25 0.9	18:10 6.0	22:49 0.5		
	M	15	5:06 4.8	9:25 1.7	17:20 5.4	22:04 1.0		Th	15	6:07 6.4	10:54 0.6	18:30 6.6	23:20 0.1		P	S	15	6:32 6.8	11:21 0.5	19:01 6.6	23:42 0.3	
	Tu	16	5:53 5.8	10:30 1.0	18:10 6.4	23:00 0.3		●	F	16	6:52 7.1	11:45 0.1	19:15 7.1				S	16	7:20 7.3	12:13 0.1	19:45 6.9	
E	W	17	6:38 6.6	11:23 0.4	18:56 7.1	23:50 -0.2	P	S	17	0:06 -0.2	7:32 7.5	12:32 -0.2	19:55 7.2	S	M	17	0:30 0.2	8:00 7.6	13:03 -0.1	20:25 7.0		
	Th	18	7:15 7.2	12:10 -0.1	19:35 7.5			S	18	0:50 -0.1	8:18 7.6	18:17 -0.2	20:35 7.1		Tu	18	1:15 0.4	8:40 7.5	13:50 0.1	21:47 6.8		
	F	19	0:35 -0.4	7:52 7.5	12:58 -0.3	20:10 7.6		S	M	19	1:32 0.2	8:50 7.4	14:00 0.0		21:15 6.7	W	19	1:58 0.7	9:20 7.2	14:33 0.3	21:58 6.5	
	S	20	1:15 -0.4	8:28 7.5	13:35 -0.2	20:50 7.2			Tu	20	2:15 0.6	9:30 7.0	14:41 0.4		21:55 6.2	Th	20	2:40 1.1	9:58 6.7	15:15 0.7	22:27 5.8	
	S	21	1:53 -0.1	9:06 7.2	14:14 0.0	21:27 6.8			W	21	2:54 1.0	10:10 6.4	15:25 0.8		22:35 5.5	F	21	3:20 1.5	10:36 6.2	15:58 1.1	23:05 5.2	
A	M	22	2:34 0.4	9:42 6.7	14:55 0.5	22:07 6.1	Th	22	3:35 1.6	10:50 5.7	16:11 1.3	23:22 4.8	D	S	22	4:00 1.9	11:15 5.6	16:46 1.3	23:44 4.8			
	Tu	23	3:10 0.9	10:20 6.1	15:35 0.9	22:48 5.4		D	F	23	4:20 2.1	11:35 6.2		17:05 1.7		E	S	23	4:48 2.2	11:55 5.0	17:30 1.6	
	W	24	3:54 1.5	11:00 5.4	16:23 1.4	23:33 4.7			S	24	0:13 4.4	5:15 2.5		12:25 4.6	18:05 2.0		M	24	0:30 4.4	5:40 2.4	12:40 4.6	18:29 2.8
	Th	25	4:42 2.1	11:48 4.8	17:20 1.9				S	25	1:25 4.1	6:18 2.8		13:40 4.3	20:20 2.0		Tu	25	1:27 4.1	6:38 2.6	13:35 4.2	19:17 2.0
	E	F	26	0:35 4.2	5:43 2.6	12:55 4.4		18:28 2.2	E	M	26	3:40 4.3		7:35 2.8	15:45 4.3	20:20 1.9	W	26	2:41 4.1	7:38 2.6	15:01 4.0	20:19 1.9
S		27	2:20 4.0	6:59 2.8	14:55 4.2	20:00 2.2	Tu	27		4:42 4.7	8:37 2.5	16:58 4.7	21:10 1.7	Th	27	4:40 4.5		8:34 2.4	17:00 4.3	21:08 1.8		
S		28	4:34 4.5	8:32 2.7	16:48 4.7	21:30 1.8	W	28		5:23 5.2	9:30 2.1	17:35 5.1	21:55 1.4	A	F	28		5:26 4.9	9:35 2.0	17:49 4.8	21:55 1.8	
M		29	5:18 5.1	9:42 2.2	17:30 5.3	22:11 1.4	Th	29		5:55 5.6	10:17 1.7	18:15 5.6	22:56 1.2		S	29		6:05 5.5	10:25 1.6	18:35 5.2	22:41 1.5	
Tu		30	5:55 5.7	10:23 1.8	18:06 5.9	22:45 1.1	C	F		30	6:35 6.0	10:56 1.3	18:57 5.8		23:17 1.0	C		S	30	6:50 6.0	11:16 1.2	19:15 5.6
W	31	6:28 6.1	11:00 1.4	18:42 6.3	23:17 0.8								N	M	31	7:28 6.3	12:00 0.9	19:50 5.7				

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 3.2 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.										FEBRUARY.										MARCH.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
	W. Mo.										W. Mo.											W. Mo.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														</

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 13.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

										MAY				JUNE.									
										MOON	Day of—	Time and Height of High and Low Water.				MOON	Day of—	Time and Height of High and Low Water.					
											W. Mo.						W. Mo.						
N	S	1	2:56	9:06	15:21	21:27	D	Tu	1	3:30	9:40	15:54	22:00	F	1	5:13	11:42	18:01	23:50				
			23.8	4.2	22.8	5.2				23.4	4.6	22.1	5.9			21.9	5.4	21.2	23.9				
D	M	2	3:48	10:03	16:24	22:30		W	2	4:26	10:50	17:14	23:20	E	2	6:13	6:39	13:08	19:28				
			21.9	6.8	20.6	7.0				21.6	6.0	20.4	7.2			6.4	21.7	5.4	21.6				
		Tu	3	5:01	11:24	17:55		Th	3	5:52	12:25	18:50		S	3	1:45	8:00	14:00	20:40				
			20.0	7.4	19.0					20.4	6.8	20.0				6.2	22.7	4.6	22.9				
		W	4	6:05	6:42	13:32	19:42		F	4	1:05	7:28	14:02	20:17	M	4	3:08	9:07	15:40	21:38			
			8.6	18.2	7.8	19.4				7.6	21.2	5.8	21.4			4.8	22.5	3.2	24.5				
		Th	5	2:06	8:18	14:55	20:59		S	5	2:39	8:44	15:15	21:18	Tu	5	4:07	10:00	16:35	22:27			
			8.0	21.0	6.0	21.4				6.1	23.2	4.0	23.5			3.0	25.6	1.8	25.9				
		F	6	3:29	9:22	15:59	21:52	E	S	6	3:45	9:39	16:13	22:06	P	W	6	5:00	10:48	17:23	23:10		
			5.8	23.4	3.4	23.8				3.8	25.1	2.0	25.4			1.6	26.6	0.8	27.0				
		S	7	4:23	10:10	16:41	22:34		M	7	4:35	10:25	16:55	22:48	Th	7	5:45	11:30	18:07	23:50			
			8.2	25.6	1.4	25.8				2.0	26.3	0.6	27.0			0.8	27.3	0.6	27.6				
E	S	8	5:06	10:50	17:25	23:12		P	Tu	8	5:18	11:07	17:40	23:27	S	F	8	6:28	12:10	18:45			
			1.4	27.4	-0.1	27.6				0.8	27.8	-0.2	28.0			0.6	27.5	1.0					
O	M	9	5:42	11:27	18:00	23:47			W	9	5:58	11:45	18:18		S	9	7:08	12:50	19:23	1.6			
			0.6	28.6	-0.8	28.6				0.2	28.4	-0.2				27.6	0.8	27.2					
P	Tu	10	6:14	12:02	18:32			Th	10	6:04	6:35	12:22	18:53		S	10	1:07	7:45	13:29	20:03			
			0.0	29.2	-0.8					28.6	0.8	28.6	0.2			27.2	1.4	28.4	2.5				
		W	11	6:21	6:47	12:37	19:06		F	11	6:40	7:11	13:02	19:31		M	11	1:48	8:27	14:11	20:46		
			29.0	0.0	29.4	-0.4				28.4	0.7	28.0	1.1			28.5	2.2	25.3	3.6				
		Th	12	6:55	7:19	13:13	19:40	S	S	12	1:20	7:50	13:40	20:10		Tu	12	2:31	9:15	14:58	21:33		
			29.0	0.4	28.6	0.4				37.8	1.4	27.0	2.2			25.3	3.2	24.0	4.8				
		F	13	1:33	7:58	13:3	20:19		S	13	2:09	8:35	14:25	20:57	C	W	13	3:21	10:07	15:58	22:30		
			28.2	1.2	27.7	1.8				26.6	2.5	26.6	3.6			28.9	4.2	22.4	5.8				
S	S	14	2:15	8:42	14:38	21:6			M	14	2:49	9:28	15:18	21:51		Th	14	4:20	11:07	17:00	23:57		
			26.8	2.4	25.8	3.4				25.0	3.8	23.5	5.0			22.4	5.1	21.0	6.6				
C	S	15	3:04	9:37	15:35	22:05		C	Tu	15	3:48	10:32	16:11	22:04	E	F	15	5:33	12:18	18:21			
			24.8	4.0	23.4	5.2				23.1	4.8	21.6	6.4			21.2	5.8	20.4					
		M	16	4:06	10:48	16:48	23:29		W	16	5:00	11:49	17:50			S	16	6:54	6:53	13:35	19:41		
			22.6	6.6	21.1	6.8				21.4	5.8	20.4				6.8	20.8	5.7	20.8				
		Tu	17	5:30	12:20	18:28			Th	17	6:28	6:28	13:15	19:21		S	17	2:11	8:10	14:46	20:50		
			20.6	6.4	20.0					6.8	20.8	5.6	20.8			6.2	21.6	3.0	21.8				
		W	18	1:09	7:12	13:56	20:07	E	F	18	1:52	7:51	14:30	20:36	A	M	18	3:16	9:12	15:48	21:42		
			7.0	20.6	5.6	21.1				5.8	21.8	4.4	22.1			5.0	22.7	4.0	22.6				
		Th	19	2:37	8:34	15:10	21:16		S	19	3:02	9:59	15:32	21:32		Tu	19	4:15	10:00	16:38	22:23		
			5.3	22.4	3.6	23.0				4.4	23.3	3.0	23.2			3.8	23.3	3.1	23.8				
		F	20	3:42	9:35	16:08	22:06		S	20	4:00	9:50	16:24	22:18		W	20	5:00	10:41	17:21	23:00		
			3.3	24.2	1.6	24.2				3.0	24.3	1.8	24.0			3.0	23.7	2.8	23.7				
E	S	21	4:34	10:21	16:55	22:47			M	21	4:48	10:32	17:08	22:54	●	Th	21	5:40	11:15	17:56	23:28		
			1.5	25.4	0.2	25.2				2.0	24.8	1.2	24.5			2.8	24.0	3.0	24.1				
		S	22	5:18	11:00	17:36	23:22	A	Tu	22	5:28	11:08	17:45	23:24	N	F	22	6:11	11:42	18:23	23:53		
			0.6	26.0	-0.2	25.6				1.7	25.0	1.4	24.7			3.0	24.2	3.6	24.4				
●	M	23	5:53	11:32	18:10	23:47	●	W	23	6:02	11:35	18:17	23:48		S	23	6:35	12:09	18:40				
			0.6	26.0	0.4	25.6				2.2	24.8	2.3	24.7			3.6	24.5	4.3					
		Tu	24	6:24	11:57	18:36			Th	24	6:27	11:59	18:37			S	24	6:20	6:52	12:35	18:54		
			1.6	25.8	1.6					3.2	24.8	3.5				25.0	3.7	25.0	4.2				
A	W	25	6:08	6:45	12:17	18:52			F	25	6:09	6:42	12:20	18:48		M	25	6:48	7:18	13:05	19:18		
			25.4	3.0	25.4	3.0				24.8	4.0	24.8	4.2			25.4	3.2	25.6	3.6				
		Th	26	6:27	6:54	12:37	19:00	N	S	26	6:31	6:55	12:45	18:57		Tu	26	1:20	7:43	13:40	19:50		
			25.2	3.8	25.6	3.6				25.2	4.0	25.2	4.0			28.3	2.6	25.9	3.2				
		F	27	6:47	7:03	13:00	19:12		S	27	6:59	7:16	13:15	19:21		W	27	2:00	8:20	14:22	20:32		
			25.6	3.6	25.8	3.4				25.6	3.4	25.4	3.6			26.4	2.4	25.6	3.2				
		S	28	1:14	7:27	13:30	19:37		M	28	1:32	7:49	13:54	19:57		Th	28	2:45	9:15	15:11	21:30		
			25.8	3.3	25.6	3.2				25.8	3.0	25.3	3.4			25.8	3.2	24.4	4.3				
N	S	29	1:48	7:58	14:08	20:13			Tu	29	2:13	8:30	14:38	20:45	D	F	29	3:39	10:12	16:12	22:33		
			25.6	3.1	25.0	3.4				25.5	3.2	24.6	3.8			24.8	3.9	23.2	5.2				
		M	30	2:29	8:43	14:53	21:00		W	30	3:01	9:23	15:32	21:40		S	30	4:45	11:20	17:26	23:50		
			21.8	3.5	23.8	4.4				24.5	3.7	23.4	4.7			25.0	4.8	22.0	6.0				
		Th	31					D		4:00	10:25	16:39	22:49										
										23.2	4.6	22.0	5.8										

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day. A comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 13.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.) all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; Q, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										AUGUST.										SEPTEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
P	S	1	6:05 22.0	12:39 5.4	18:51 21.7							P	W	1	2:19 5.6	8:23 22.1	15:13 4.8	20:58 22.9	O	S	1	4:21 1.4	10:17 24.6	16:48 1.1	22:34 25.7							
	M	2	1:18 6.0	7:29 22.3	14:00 5.0	20:11 22.4							S	Th	2	3:35 3.7	9:30 23.5	16:06 2.9		21:57 24.4	S	2	5:11 -0.2	11:00 25.7	17:32 -0.1	23:15 26.6						
	Tu	3	2:40 4.8	8:42 23.4	15:15 3.7	21:13 23.8							F	3	4:34 1.7	10:24 24.8	17:00 1.3	22:44 25.7		M	3	5:52 -1.0	11:36 26.2	18:11 -0.2	23:48 26.9							
	W	4	3:49 3.0	9:41 24.6	16:13 2.2	22:06 25.1							O	S	4	5:23 0.2	11:09 25.8	17:45 0.3		23:26 26.4	Tu	4	6:29 -0.9	12:17 26.2	18:45 0.4							
	Th	5	4:45 1.6	10:31 25.6	17:09 1.0	22:53 26.2							S	5	6:06 -0.5	11:48 26.2	18:27 0.2			E	W	5	0:17 26.8	7:00 0.1	12:34 25.9	19:12 1.7						
S	F	6	5:33 0.4	11:15 26.4	17:55 0.5	23:35 26.8							M	6	0:02 26.7	6:46 -0.4	12:23 26.1	19:02 0.8	Th	6	0:45 26.4	7:26 1.5	12:59 25.6	19:34 3.1								
	S	7	6:16 0.1	11:56 26.6	18:36 0.6							Tu	7	0:36 26.7	7:21 0.3	12:55 25.8	19:34 1.9	F	7	1:10 26.0	7:49 2.8	13:25 25.2	19:55 4.2									
	S	8	0:13 27.0	6:57 0.3	12:34 26.3	19:15 1.3							W	8	1:08 26.4	7:51 1.5	13:26 25.4	20:02 3.1	S	8	1:38 25.5	8:12 3.9	13:55 24.7	20:20 4.9								
	M	9	0:50 26.7	7:35 0.9	13:11 25.8	19:51 2.2							E	Th	9	1:40 25.9	8:22 2.6	13:59 24.8	20:32 4.2	S	9	2:11 24.5	8:40 4.8	14:31 23.6	20:54 5.5							
	Tu	10	1:27 26.2	8:13 1.9	13:50 25.1	20:28 3.4							F	10	2:14 25.1	8:55 3.8	14:34 23.9	21:07 5.3	A	M	10	2:52 23.2	9:19 5.8	15:16 22.3	21:41 6.6							
E	W	11	2:06 25.4	8:52 2.8	14:30 24.1	21:08 4.4							S	11	2:52 23.8	9:33 4.9	15:13 22.6	21:48 6.2	N	Tu	11	3:45 21.4	10:10 7.2	16:16 20.4	22:50 7.9							
	Th	12	2:49 24.3	9:36 4.0	15:16 22.8	21:55 6.5							C	S	12	3:41 22.3	10:20 6.2	16:10 21.1		22:45 7.4	W	12	4:56 19.4	11:30 8.7	17:41 18.9							
	F	13	3:39 23.0	10:25 5.0	16:10 21.6	22:49 6.6							A	M	13	4:42 20.5	11:25 7.5	17:22 19.5			Th	13	0:30 8.6	6:36 18.6	13:16 8.9	19:19 19.1						
	S	14	4:39 21.5	11:27 6.1	17:20 20.2	23:58 7.4							Tu	14	0:01 8.3	6:06 19.2	12:49 8.3	18:51 19.0		F	14	2:05 7.5	8:11 19.6	14:44 7.2	20:38 21.0							
	S	15	5:54 20.2	12:38 6.8	18:40 19.8							W	15	1:34 8.1	7:37 19.2	14:15 7.6	20:16 19.9	S		15	3:18 5.5	9:12 21.5	15:46 5.0	21:31 23.1								
A	M	16	1:10 7.4	7:15 20.0	13:54 6.6	19:59 20.3							N	Th	16	2:53 6.6	8:51 20.5	15:26 6.0	21:15 21.6	P	S	16	4:10 3.3	9:58 23.4	16:38 8.0	22:14 25.0						
	Tu	17	2:30 6.5	8:30 20.9	15:05 5.6	21:00 21.2							F	17	3:56 4.8	9:43 22.0	16:20 4.3	22:01 23.1	M		17	4:54 1.4	10:36 25.3	17:11 1.7	22:50 26.6							
	W	18	3:35 5.1	9:25 21.9	16:02 4.4	21:48 22.4							S	18	4:43 3.0	10:25 23.4	17:08 3.0	22:40 24.3	Tu		18	5:28 0.3	11:11 26.8	17:44 0.9	23:24 27.8							
	Th	19	4:27 3.8	10:10 22.8	16:49 3.4	22:27 23.3							S	19	5:22 1.8	11:01 24.7	17:38 2.2	23:03 25.8	E		W	19	6:00 -0.3	11:44 27.8	18:13 0.6	23:56 28.6						
	F	20	5:10 2.8	10:49 23.5	17:28 2.9	23:02 24.2							M	20	5:55 1.1	11:32 25.8	18:18 2.0	23:44 26.8			Th	20	6:31 -0.4	12:15 28.4	18:43 0.7							
●	S	21	5:45 2.4	11:20 24.3	18:00 3.0	23:32 25.0							Tu	21	6:25 0.9	12:02 26.7	18:35 1.9		S	F	21	0:30 29.0	7:02 0.0	12:49 28.6	19:14 1.0							
	S	22	6:16 2.3	11:49 25.0	18:27 3.1							W	22	0:15 27.7	6:53 0.8	12:33 27.4	19:01 1.8	S		22	1:05 28.8	7:35 0.6	13:25 28.1	19:50 1.6								
	M	23	0:00 25.8	6:42 2.3	12:17 25.6	18:51 3.3							E	Th	23	0:48 28.3	7:22 0.7	13:07 27.8		19:33 1.7	S	23	1:45 27.9	8:14 1.8	14:07 26.9	20:33 2.7						
	Tu	24	0:31 26.6	7:09 2.2	12:49 26.3	19:10 3.1							F	24	1:24 28.4	7:55 1.0	13:45 27.6	20:07 2.0		M	24	2:30 26.1	9:01 3.2	14:56 25.0	21:28 4.1							
	W	25	1:06 27.2	7:38 2.0	13:24 26.7	19:45 2.8							S	25	2:06 27.7	8:34 1.7	14:28 26.8	20:51 2.8		Tu	25	3:25 23.8	10:00 5.1	15:57 22.8	22:40 5.8							
E	Th	26	1:42 27.4	8:12 1.9	14:06 26.5	20:24 2.8							S	26	2:51 26.1	9:21 2.9	15:18 24.9	21:45 4.1	D	W	26	4:39 21.4	11:24 6.7	17:24 20.8								
	F	27	2:25 26.8	8:56 2.2	14:50 25.7	21:10 3.3							D	M	27	3:47 24.0	10:20 4.6	16:21 22.7		22:55 5.7	Th	27	0:12 6.6	6:20 20.2	13:00 6.7	19:06 20.6						
	S	28	3:15 25.6	9:46 3.2	15:44 24.3	22:07 4.4							Tu	28	5:01 21.8	11:40 6.3	17:46 21.0			F	28	1:49 5.5	7:58 21.2	14:29 5.1	20:30 22.4							
	S	29	4:14 23.8	10:46 4.5	16:51 22.5	23:18 5.7							S	W	29	0:28 6.6	6:37 20.6	13:16 6.6		19:23 20.8	S	29	3:05 3.4	9:09 23.1	15:37 2.9	21:31 24.4						
	M	30	5:29 22.0	12:04 5.8	18:14 21.4							Th	30	2:05 5.8	8:11 21.3	14:46 5.1	20:46 22.6	S		30	4:04 1.2	10:01 24.6	16:30 1.0	22:17 25.8								
D	Tu	31	0:48 6.4	6:58 21.2	13:35 6.0	19:44 21.5							F	31	3:22 3.6	9:22 23.0	15:53 3.0	21:45 24.4														

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 13.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil: 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
N C	M	1	4:53 -0.4	10:43 25.8	17:15 -0.2	22:57 26.8				C	Th	1	5:48 0.0	11:26 25.6	18:08 1.0	23:36 25.8				A	S	1	6:00 1.8	11:31 24.8	18:14 2.4	23:43 24.7						
	Tu	2	5:33 -1.1	11:19 26.3	17:51 -0.3	23:30 27.0					F	2	6:17 1.0	11:50 25.4	18:29 2.4					S	2	6:25 3.2	11:54 24.6	18:35 8.6								
	W	3	6:07 -0.7	11:48 26.2	18:25 0.5	23:58 26.6					S	3	0:00 25.4	6:40 2.7	12:12 25.0	18:48 3.8				N	M	3	0:06 24.5	6:43 4.3	12:15 24.8	18:50 4.4						
	Th	4	6:38 0.4	12:12 25.9	18:49 2.0					A	S	4	0:22 25.1	6:55 4.1	12:33 25.0	19:00 4.5				Tu	4	0:29 24.6	6:52 4.9	12:41 25.0	19:06 4.4							
	F	5	0:21 26.1	7:00 2.1	12:34 25.7	19:06 3.4					M	5	0:45 25.0	7:06 4.6	12:58 25.0	19:07 4.4				W	5	0:57 24.8	7:10 4.6	13:12 25.2	19:34 4.1							
	S	6	0:45 25.7	7:18 3.5	12:57 25.3	19:21 4.3				N	Tu	6	1:14 24.8	7:26 4.6	13:30 24.8	19:47 4.4				Th	6	1:31 24.6	7:41 4.6	13:50 24.9	20:12 4.1							
	S	7	1:08 25.4	7:33 4.2	13:25 25.0	19:41 4.5					W	7	1:50 24.2	7:56 4.8	14:10 24.0	20:30 4.8				F	7	2:14 24.0	8:24 4.7	14:36 24.0	21:02 4.4							
	M	8	1:40 24.7	7:56 4.6	13:58 24.3	20:14 4.8					Th	8	2:35 23.0	8:44 5.6	15:00 22.7	21:25 5.7				S	8	3:06 23.0	9:17 5.4	15:34 22.9	22:05 5.2							
	Tu	9	2:15 23.7	8:30 5.2	14:40 23.1	20:58 5.6				C	F	9	3:33 21.5	9:45 6.8	16:05 21.1	22:38 6.8				S	9	4:11 21.7	10:25 6.3	16:45 21.6	23:20 6.0							
	W	10	3:05 22.2	9:18 6.4	15:33 21.4	21:56 6.8					S	10	4:50 20.0	11:08 7.9	17:30 20.0					E	M	10	5:32 20.8	11:50 7.0	18:10 21.2							
	Th	11	4:09 20.2	10:24 7.9	16:46 19.6	23:25 8.0					S	11	0:13 7.2	6:26 19.8	12:50 7.8	19:08 20.8				Tu	11	0:45 6.0	6:58 21.1	13:20 6.6	19:34 22.2							
	F	12	5:40 18.8	12:07 9.0	18:26 19.2						M	12	1:41 6.1	7:51 21.0	14:15 6.2	20:18 22.8				W	12	2:06 5.0	8:14 22.4	14:38 5.0	20:41 23.8							
S	13	1:11 7.8	7:22 19.4	13:52 7.9	19:56 20.9				E	Tu	13	2:50 4.2	8:52 23.1	15:20 4.0	21:12 24.8				Th	13	3:14 3.6	9:11 24.1	15:41 3.2	21:36 25.2								
S	14	2:34 6.0	8:36 21.2	15:05 5.6	20:57 23.1					W	14	3:46 2.2	9:40 25.0	16:10 2.2	21:58 26.4				F	14	4:10 2.0	10:00 25.6	16:35 1.6	22:22 26.4								
M	15	3:35 3.6	9:28 23.4	16:00 3.4	21:45 25.2					Th	15	4:34 0.8	10:22 26.6	16:54 1.0	22:40 27.6				P	S	15	4:58 0.9	10:45 26.8	17:20 0.6	23:05 27.2							
Tu	16	4:22 1.6	10:08 25.4	16:41 1.7	22:25 27.0				●	F	16	5:15 1.0	11:00 27.8	17:34 0.4	23:18 28.2				S	16	5:42 0.4	11:25 27.6	18:03 0.3	23:45 27.8								
W	17	5:00 0.1	10:47 27.2	17:18 0.6	23:02 28.1				P	S	17	5:53 0.0	11:39 28.4	18:10 0.7	23:57 28.4				S	M	17	6:22 0.5	12:06 27.8	18:42 0.4								
Th	18	5:37 -0.6	11:22 28.2	17:52 0.2	23:38 28.8					S	18	6:30 0.3	12:15 28.4	18:48 0.7					Tu	18	0:25 27.5	7:00 1.2	12:42 27.6	19:23 1.0								
F	19	6:10 -0.6	11:56 28.8	18:25 0.3					S	M	19	0:35 28.0	7:07 1.2	12:55 27.8	19:28 1.5				W	19	1:05 26.8	7:41 2.0	13:24 27.0	20:05 1.8								
S	20	0:12 29.0	6:43 0.0	12:31 28.7	18:59 0.8					Tu	20	1:15 27.0	7:48 2.4	13:37 26.8	20:13 2.5				Th	20	1:48 25.7	8:25 3.1	14:09 25.7	20:52 2.8								
S	21	0:50 28.6	7:19 0.8	13:08 28.0	19:36 1.5					W	21	2:00 27.5	8:36 3.7	14:24 25.1	21:05 3.8				F	21	2:35 24.2	9:12 4.4	14:58 24.2	21:45 4.0								
M	22	1:30 27.7	7:57 2.0	13:51 26.8	20:21 2.7					Th	22	2:54 25.6	9:33 5.1	15:21 25.3	22:11 4.8				D	S	22	3:30 22.6	10:10 5.5	15:55 22.6	22:45 5.0							
Tu	23	2:15 25.7	8:45 3.6	14:40 24.8	21:16 4.1				D	F	23	4:00 21.7	10:41 6.2	16:34 21.6	23:25 5.6				E	S	23	4:37 21.1	11:16 6.4	17:10 21.2	23:57 5.7							
W	24	3:10 23.5	9:45 5.4	15:42 22.8	22:27 5.5					S	24	5:25 20.4	12:06 6.6	18:02 20.8					M	24	5:59 20.1	12:35 6.6	18:33 20.8									
Th	25	4:22 21.3	11:04 6.7	17:04 21.0	23:53 6.2					S	25	0:46 5.4	6:56 20.8	13:27 6.7	19:27 21.9				Tu	25	1:15 5.6	7:22 20.8	13:52 6.0	19:52 21.6								
F	26	6:00 20.2	12:38 6.7	18:41 20.8					E	M	26	2:04 4.3	8:10 22.1	14:39 4.2	20:35 23.3				W	26	2:26 4.9	8:30 21.6	15:00 4.7	20:56 22.6								
S	27	0:25 5.4	7:35 21.2	14:05 5.2	20:06 22.4					Tu	27	3:07 2.9	9:08 23.3	15:36 2.8	21:27 24.2				Th	27	3:30 3.8	9:24 22.6	15:57 3.4	21:45 23.3								
S	28	2:40 3.6	8:47 22.8	15:14 8.2	21:08 24.3					W	28	4:00 1.6	9:55 24.2	16:25 1.7	22:10 25.0				A	F	28	4:21 2.7	10:08 23.4	16:45 2.5	22:26 23.8							
M	29	3:40 1.6	9:40 24.3	16:06 1.4	21:55 25.5					Th	29	4:48 1.0	10:34 24.6	17:08 1.2	22:47 25.1				S	29	5:05 2.2	10:45 24.0	17:25 2.0	23:01 24.0								
Tu	30	4:30 0.1	10:20 25.2	16:50 0.4	22:36 26.2				C	F	30	5:25 1.0	11:06 24.8	17:44 1.5	23:19 24.9				C	S	30	5:42 2.2	11:15 24.2	17:58 2.3	23:30 24.2							
W	31	5:12 -0.4	10:58 25.7	17:30 0.2	23:10 26.2														N	M	31	6:12 8.0	11:40 24.2	18:24 3.0	23:54 24.4							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 13.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	M 1	4:30	10:05	16:45	22:36	●	Th 1	5:20	10:54	17:40	23:25	A	Th 1	4:00	9:37	16:15	22:04
		10.2	1.3	10.5	0.9			9.2	1.5	9.8	1.5			9.8	0.7	10.0	0.7
E	Tu 2	5:20	10:50	17:36	23:22	●	F 2	6:06	11:40	18:28	...	F	2	4:35	10:16	16:55	22:43
		9.7	1.6	9.9	1.2			8.7	2.0	8.7	...			9.3	1.2	9.3	1.3
●	W 3	6:10	11:35	18:28	...		S 3	0:10	6:58	12:30	19:25	●	S 3	5:17	11:00	17:38	23:27
		9.1	2.0	9.4	...			1.9	8.2	2.4	8.3			8.8	1.7	8.7	1.8
A	Th 4	0:10	7:02	12:25	19:22		S 4	1:00	7:58	13:25	20:29		S 4	6:05	11:50	18:30	...
		1.7	8.6	2.3	8.9			2.4	8.0	2.7	8.1			8.4	2.1	8.2	...
	F 5	1:00	8:00	13:19	20:20		M 5	1:56	9:00	14:28	21:34	N	M 5	0:16	7:05	12:44	19:37
		2.1	8.4	2.6	8.7			2.6	8.2	2.7	8.2			2.3	8.1	2.5	7.8
	S 6	1:52	8:55	14:15	21:20	N	Tu 6	2:55	10:00	15:34	22:33		Tu 6	1:14	8:14	13:50	20:50
		2.4	8.4	2.7	8.6			2.6	8.6	2.4	8.6			2.6	8.1	2.6	7.9
	S 7	2:45	9:48	15:13	22:14		W 7	3:56	10:55	16:30	23:24		W 7	2:20	9:24	14:58	22:00
		2.5	8.5	2.5	8.8			2.3	9.2	1.9	9.1			2.6	8.5	2.4	8.4
	M 8	3:40	10:38	16:06	23:04		Th 8	4:50	11:42	17:23	...		Th 8	3:24	10:24	16:00	22:55
		2.3	8.9	2.2	9.0			1.8	9.8	1.2	...			2.3	9.1	1.9	9.0
N	Tu 9	4:30	11:24	16:58	23:50	○	F 9	0:10	5:42	12:26	18:11		F 9	4:24	11:16	16:58	23:45
		2.0	9.4	1.7	9.4			9.7	1.2	10.5	0.5			1.8	9.9	1.1	9.7
○	W 10	5:18	12:05	17:45	...		S 10	0:52	6:28	13:09	18:56	○	S 10	5:17	12:03	17:59	...
		1.6	9.9	1.2	...			10.2	0.6	11.0	-0.1			1.1	10.7	0.3	...
	Th 11	0:30	6:03	12:45	18:30		S 11	1:34	7:12	13:50	19:40		S 11	0:30	6:05	12:45	18:35
		9.7	1.1	10.3	0.6			10.6	0.1	11.3	-0.6			10.4	0.5	11.3	-0.3
	F 12	1:10	6:46	13:26	19:15	E	M 12	2:15	7:55	14:32	20:25	E	M 12	1:10	6:50	13:28	19:20
		10.0	0.7	10.6	0.1			10.8	-0.1	11.4	-0.7			10.9	-0.1	11.7	-0.8
	S 13	1:52	7:30	14:08	19:59	P	Tu 13	2:58	8:40	15:14	21:10	P	Tu 13	1:54	7:35	14:11	20:04
		10.2	0.4	10.8	-0.2			10.7	-0.2	11.3	-0.6			11.1	-0.4	11.8	-1.0
	S 14	2:34	8:14	14:48	20:43		W 14	3:42	9:25	15:59	21:58		W 14	2:36	8:18	14:55	20:50
		10.3	0.3	10.8	-0.3			10.6	0.0	10.9	-0.3			11.1	-0.5	11.6	-0.8
	M 15	3:18	8:58	15:32	21:29		Th 15	4:28	10:10	16:49	22:46		Th 15	3:20	9:05	15:41	21:36
		10.3	0.3	10.7	-0.2			10.2	0.4	10.4	0.3			10.9	-0.3	11.2	-0.4
E	Tu 16	4:02	9:44	16:18	22:16	○	F 16	5:20	11:02	17:45	23:38		F 16	4:07	9:54	16:30	22:25
		10.1	0.5	10.4	0.1			9.7	1.0	9.8	0.9			10.5	0.1	10.7	0.2
○	W 17	4:50	10:32	17:10	23:07		S 17	6:20	12:00	18:50	...	○	S 17	5:00	10:45	17:28	23:18
		9.8	0.9	10.0	0.5			9.2	1.5	9.3	...			9.9	0.7	9.9	1.0
	Th 18	5:44	11:24	18:06	...		S 18	0:36	7:30	13:05	20:05	S	S 18	6:00	11:40	18:35	...
		9.4	1.3	9.6	...			1.6	8.9	2.0	9.1			9.4	1.3	9.4	...
	F 19	0:02	6:46	12:22	19:12	S	M 19	1:42	8:41	14:15	21:20		M 19	0:16	7:10	12:46	19:48
		1.0	9.0	1.7	9.3			2.1	9.0	2.1	9.2			1.7	9.1	1.9	9.1
P	S 20	1:02	7:54	13:27	20:25		Tu 20	2:55	9:50	15:29	22:26		Tu 20	1:21	8:20	13:58	21:04
		1.5	8.9	1.9	9.2			2.2	9.5	2.0	9.6			2.2	9.2	2.2	9.1
	S 21	2:06	9:05	14:36	21:35		W 21	4:00	10:48	16:34	23:23		W 21	2:33	9:28	15:10	22:10
		1.8	9.1	2.0	9.5			2.0	10.1	1.6	10.0			2.4	9.5	2.1	9.4
S	M 22	3:14	10:10	15:45	22:39		Th 22	5:00	11:40	17:30	...		Th 22	3:40	10:28	16:15	23:05
		1.8	9.6	1.7	9.9			1.6	10.7	1.0	...			2.3	10.0	1.8	9.8
	Tu 23	4:17	11:05	16:47	23:35	●	F 23	0:14	5:48	12:25	18:16	●	F 23	4:38	11:18	17:08	23:53
		1.5	10.2	1.2	10.4			10.5	1.1	11.3	0.4			1.8	10.6	1.3	10.3
●	W 24	5:15	11:55	17:44	...		S 24	0:58	6:32	13:06	18:58	●	S 24	5:25	12:04	17:55	...
		1.2	10.8	0.6	...			10.9	0.7	11.6	0.0			1.4	11.1	0.8	...
	Th 25	0:27	6:05	12:43	18:33		S 25	1:38	7:10	13:48	19:38	E	S 25	0:34	6:06	12:44	18:34
		10.8	0.7	11.3	0.1			11.0	0.4	11.7	-0.2			10.6	0.9	11.4	0.4
	F 26	1:14	6:50	13:27	19:18	E	M 26	2:15	7:48	14:25	20:14		M 26	1:10	6:44	13:22	19:10
		11.1	0.4	11.6	-0.2			10.9	0.2	11.6	-0.2			10.7	0.6	11.4	0.2
	S 27	1:58	7:35	14:10	20:00		Tu 27	2:50	8:24	15:03	20:52		Tu 27	1:45	7:19	14:00	19:44
		11.2	0.2	11.8	-0.4			10.7	0.2	11.2	0.0			10.7	0.4	11.3	0.1
	S 28	2:40	8:15	14:50	20:42		W 28	3:24	9:00	15:38	21:30		W 28	2:18	7:52	14:33	20:17
		11.0	0.2	11.6	-0.3			10.3	0.4	10.6	0.3			10.4	0.3	10.9	0.2
E	M 29	3:20	8:52	15:32	21:23							A	Th 29	2:50	8:30	15:06	20:52
		10.7	0.3	11.2	-0.1									10.2	0.4	10.4	0.4
	Tu 30	3:58	9:33	16:14	22:02								F 30	3:22	9:04	15:42	21:28
		10.3	0.6	10.4	0.4									9.8	0.6	9.9	0.7
	W 31	4:39	10:12	16:55	22:42								S 31	3:58	9:44	16:19	22:10
		9.7	1.0	10.0	0.9									9.4	1.0	9.4	1.3

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 5.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.), and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.										MAY.										JUNE.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
N	S	1	4:30 9.2	10:40 1.6	16:51 9.1	23:03 1.9	D	Tu	1	4:46 9.3	11:00 2.0	17:11 9.1	23:22 2.3	F	1	6:13 9.3	12:32 1.8	18:45 9.0														
D	M	2	5:13 9.0	11:24 2.2	17:36 8.8	23:50 2.5		W	2	5:35 9.0	11:55 2.2	18:07 8.8		E	S	2	0:57 2.3	7:14 9.3	13:34 1.8	19:49 9.1												
	Tu	3	6:02 8.7	12:20 2.6	18:34 8.5			Th	3	0:19 2.6	6:37 8.9	12:58 2.3	19:13 8.6		S	3	2:02 2.3	8:17 9.5	14:37 1.7	20:54 9.3												
	W	4	0:48 2.8	7:08 8.5	13:28 2.7	19:43 8.3		F	4	1:25 2.7	7:48 9.0	14:05 2.2	20:22 8.8		M	4	3:07 1.9	9:21 9.8	15:39 1.4	21:50 9.7												
	Th	5	1:58 3.0	8:18 8.7	14:40 2.5	20:55 8.6		S	5	2:30 2.4	8:51 9.3	15:11 1.8	21:27 9.3		Tu	5	4:07 1.4	10:20 10.2	16:37 0.9	22:52 10.3												
	F	6	3:08 2.6	9:25 9.2	15:45 2.0	22:00 9.1	E	S	6	3:38 1.8	9:53 9.9	16:10 1.2	22:25 9.9	P	W	6	5:03 0.9	11:17 10.7	17:32 0.5	23:45 10.7												
	S	7	4:12 2.0	10:25 9.9	16:42 1.2	22:57 9.8		M	7	4:37 1.3	10:50 10.5	17:04 0.6	23:18 10.5		Th	7	5:56 0.4	12:10 11.1	18:23 0.2													
E	S	8	5:08 1.2	11:20 10.7	17:33 0.4	23:47 10.6	O	P	Tu	8	5:30 0.6	11:43 11.1	17:55 0.0		S	F	8	0:37 11.1	6:48 -0.1	13:04 11.4	19:13 -0.1											
O	M	9	5:56 0.5	12:08 11.4	18:20 -0.2			W	9	0:08 11.0	6:20 0.1	12:32 11.5	18:45 -0.3		S	9	1:27 11.4	7:38 -0.3	13:52 11.6	20:04 -0.1												
P	Tu	10	0:34 11.1	6:42 0.0	12:55 11.8	19:08 -0.6		Th	10	0:58 11.4	7:08 -0.3	13:21 11.7	19:38 -0.4		S	10	2:15 11.5	8:27 -0.3	14:42 11.3	20:54 0.1												
	W	11	1:20 11.5	7:27 -0.3	13:39 12.0	19:52 -0.8		F	11	1:45 11.6	7:55 -0.4	14:08 11.7	20:22 -0.3		M	11	3:03 11.4	9:17 -0.2	15:31 11.0	21:43 0.5												
	Th	12	2:05 11.6	8:12 -0.3	14:25 11.9	20:38 -0.5	S	S	12	2:33 11.5	8:43 -0.3	14:57 11.5	21:09 0.0		Tu	12	3:53 11.1	10:07 0.1	16:23 10.5	22:33 1.0												
	F	13	2:49 11.4	9:00 -0.1	15:12 11.5	21:25 -0.1		S	13	3:32 11.2	9:33 0.0	15:47 11.0	22:00 0.5	C	W	13	4:43 10.6	11:00 0.6	17:15 9.9	23:26 1.5												
S	S	14	3:37 11.0	9:49 0.2	16:02 11.0	22:15 0.5		M	14	4:12 10.7	10:25 0.5	16:40 10.4	22:54 1.1		Th	14	5:37 10.2	11:53 1.1	18:10 9.5													
C	S	15	4:27 10.5	10:40 0.7	16:55 10.3	23:10 1.2	C	Tu	15	5:07 10.2	11:22 1.0	17:38 9.8	23:52 1.7	E	F	15	0:29 1.9	6:31 9.7	12:49 1.5	19:06 9.1												
	M	16	5:22 10.0	11:38 1.3	17:57 9.7			W	16	6:04 9.8	12:22 1.4	18:40 9.3			S	16	1:17 2.2	7:28 9.4	13:46 1.9	20:03 8.8												
	Tu	17	0:10 1.8	6:23 9.4	12:43 1.8	19:04 9.1		Th	17	0:55 2.1	7:05 9.5	13:26 1.7	19:46 9.0		S	17	2:15 2.4	8:25 9.2	14:42 2.3	20:56 8.8												
	W	18	1:17 2.3	7:31 9.1	13:55 2.0	20:17 8.9	E	F	18	1:59 2.3	8:08 9.4	14:28 1.9	20:48 8.9	A	M	18	3:10 2.5	9:20 9.1	15:33 2.2	21:48 8.8												
	Th	19	2:30 2.4	8:40 9.2	15:08 1.9	21:23 9.0		S	19	3:00 2.2	9:58 9.4	15:25 1.9	21:44 9.0		Tu	19	4:00 2.4	10:12 9.1	16:23 2.1	22:38 9.1												
	F	20	3:34 2.2	9:42 9.5	16:02 1.7	22:22 9.3		S	20	3:58 2.1	10:02 9.5	16:11 1.7	22:33 9.3		W	20	4:46 2.1	11:01 9.3	17:12 2.0	23:22 9.3												
E	S	21	4:28 1.8	10:36 9.9	16:53 1.8	23:10 9.6		M	21	4:40 1.8	10:50 9.7	17:02 1.6	23:16 9.5	●	Th	21	5:38 1.8	11:45 9.4	17:51 1.8													
●	S	22	5:14 1.4	11:22 10.3	17:37 1.0	23:50 9.9	A	Tu	22	5:23 1.6	11:34 9.9	17:46 1.4	23:55 9.8	N	F	22	0:00 9.6	6:13 1.5	12:25 9.7	18:30 1.6												
	M	23	5:55 1.1	12:05 10.5	18:17 0.8		●	W	23	6:02 1.4	12:14 10.0	18:23 1.2			S	23	0:40 9.9	6:55 1.2	13:03 9.9	19:07 1.4												
	Tu	24	0:28 10.2	6:32 0.9	12:43 10.7	18:55 0.6		Th	24	0:30 10.0	6:39 1.2	12:51 10.1	18:58 1.2		S	24	1:18 10.2	7:30 1.0	13:42 10.1	19:46 1.2												
A	W	25	1:00 10.3	7:07 0.8	13:18 10.7	19:28 0.7		F	25	1:04 10.1	7:15 1.1	13:27 10.2	19:33 1.1		M	25	1:58 10.4	8:10 0.8	14:21 10.1	20:28 1.2												
	Th	26	1:34 10.4	7:41 0.8	13:58 10.6	20:02 0.8	N	S	26	1:40 10.2	7:52 1.0	14:03 10.2	20:16 1.2		Tu	26	2:38 10.4	8:51 0.7	15:01 10.1	21:06 1.2												
	F	27	2:07 10.4	8:15 0.9	14:28 10.4	20:37 1.0		S	27	2:18 10.2	8:30 1.0	14:42 10.1	20:48 1.3		W	27	3:21 10.4	9:35 0.8	15:45 10.0	21:53 1.4												
	S	28	2:42 10.2	8:53 1.0	15:05 10.2	21:12 1.2		M	28	2:57 10.1	9:10 1.1	15:19 9.9	21:28 1.5		Th	28	4:06 10.2	10:22 1.0	16:32 9.8	22:41 1.6												
N	S	29	3:21 10.0	9:32 1.2	15:43 9.8	21:52 1.7		Tu	29	3:40 9.9	9:53 1.3	16:02 1.6	22:18 1.8	☾	F	29	4:55 10.0	11:12 1.2	17:22 9.6	23:33 1.8												
	M	30	4:02 9.7	10:15 1.6	16:23 9.4	22:33 2.0		W	30	4:26 9.7	10:40 1.5	16:51 9.4	23:02 2.0	E	S	30	5:48 9.7	12:07 1.4	18:18 9.3													
							D	Th	31	5:17 9.4	11:33 1.7	17:45 9.2	23:56 2.2																			

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 5.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil: 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; C, full moon; Q, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.										AUGUST.										SEPTEMBER.															
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.								Moon.	Day of— W. Mo.	Time and Height of High and Low Water.								Moon.	Day of— W. Mo.	Time and Height of High and Low Water.													
P	S 1	0:29	6:46	13:09	19:25	P	W 1	2:17	8:36	14:53	21:10	O	S 1	4:20	10:38	16:49	23:00	E	W 5	1:15	7:28	13:41	19:42	A	M 10	4:30	10:41	16:52	22:58	N	Th 13	0:42	6:58	13:10	19:29
	M 2	1:35	7:50	14:13	20:29	S	Th 2	3:25	9:45	16:00	22:15		S 2	5:15	11:31	17:40	23:49			F 14	1:50	8:03	14:17			20:36									
	Tu 3	2:40	8:57	15:17	21:32	F 3	4:30	10:48	17:00	23:11	M 3		6:03	12:20	18:25	S 15	2:55			9:10	15:24	21:38													
	W 4	3:45	10:00	16:15	22:30	W 4	5:27	11:45	17:55	24:00	Th 4		0:32	6:47	13:02	19:05	S 16			3:55	10:10	16:22	22:35												
	Th 5	4:44	11:00	17:13	23:26	Th 5	0:07	6:19	12:35	18:43	W 5		1:13	7:28	13:41	19:42	M 17			4:49	11:08	17:12	23:25												
S	F 6	5:40	11:55	18:07	24:00	S	M 6	0:52	7:06	13:22	19:27	C	Th 6	1:56	8:08	14:18	20:20	P	S 23	3:04	9:16	15:27	21:37	D	Tu 25	4:41	11:00	17:11	23:25						
	S 7	0:20	6:31	12:47	19:00	Tu 7	1:37	7:50	14:06	20:10	S 7		2:32	8:45	14:55	20:59	S 24			3:50	10:05	16:16	22:29												
	S 8	1:10	7:21	13:38	19:47	W 8	2:20	8:35	14:48	20:50	S 8		3:10	9:23	15:32	21:36	M 24			3:50	10:05	16:16	22:29												
	M 9	1:56	8:10	14:25	20:32	Th 9	3:00	9:16	15:30	21:31	S 9		3:50	10:00	16:11	22:18	W 25			4:41	11:00	17:11	23:25												
	Tu 10	2:44	8:57	15:12	21:18	F 10	3:44	9:58	16:10	22:15	M 10		4:30	10:41	16:51	23:00	Th 26			5:43	12:00	18:15	24:30												
E	W 11	3:28	9:45	16:00	22:05	S	11	4:25	10:41	16:52	22:58	N	Tu 11	5:15	11:25	17:35	23:46	F	S 29	3:00	9:22	15:32	21:44	S	S 30	4:03	10:22	16:33	22:40						
	Th 12	4:15	10:32	16:46	22:51	C	S 12	5:12	11:25	17:35	23:46		W 12	6:00	12:13	18:26	S 13			0:42	6:58	13:10	19:29												
	F 13	5:04	11:20	17:35	23:40	A	M 13	5:59	12:12	18:22	Th 13		0:42	6:58	13:10	19:29	S 14			1:35	7:46	14:00	20:05												
	S 14	5:55	12:10	18:24	24:30	Tu 14	0:34	6:47	13:00	19:15	F 14		1:50	8:03	14:17	20:36	S 22			2:18	8:30	14:42	20:49												
	S 15	0:34	6:45	13:00	19:13	W 15	1:30	7:43	13:58	20:12	S 15		2:55	9:10	15:24	21:38	S 23			3:04	9:16	15:27	21:37												
A	M 16	1:27	7:40	13:52	20:06	N	Th 16	2:31	8:45	14:57	21:12	O	S 16	3:55	10:10	16:22	22:35	E	W 19	0:10	6:21	12:37	18:40	P	S 27	2:18	8:30	14:42	20:49						
	Tu 17	2:19	8:32	14:45	21:00	F 17	3:30	9:45	15:56	22:10	M 17		4:49	11:08	17:12	23:25	S 28			3:00	9:22	15:32	21:44												
	W 18	3:13	9:27	15:40	21:52	S 18	4:25	10:40	16:50	23:02	Th 18		5:43	12:00	18:15	24:30	S 29			3:00	9:22	15:32	21:44												
	Th 19	4:06	10:20	16:32	22:44	S 19	5:15	11:30	17:37	23:50	W 19		6:00	12:13	18:26	24:30	S 30			4:03	10:22	16:33	22:40												
	F 20	4:55	11:09	17:20	23:30	●	M 20	6:03	12:15	18:20	24:30		Th 20	0:58	7:05	13:17	19:21			S 31	5:02	11:20	17:31			23:44									
N	S 21	5:42	11:55	18:03	24:00	●	Tu 21	0:34	6:45	12:59	19:03	C	S 21	1:35	7:46	14:00	20:05	D	Th 27	0:31	6:58	13:09	19:23												
	S 22	0:14	6:26	12:39	18:43	W 22	1:15	7:27	13:40	19:45	F 21		1:35	7:46	14:00	20:05	S 28			1:46	8:08	14:23	20:37												
	M 23	0:57	7:07	13:20	19:22	E	Th 23	1:57	8:10	14:20	20:25		S 22	2:18	8:30	14:42	20:49			S 29	2:00	8:21	14:39	20:55											
	Tu 24	1:35	7:47	14:00	20:03	F 24	2:40	8:52	15:03	21:10	M 24		3:50	10:05	16:16	22:29	S 30			4:03	10:22	16:33	22:40												
	W 25	2:18	8:30	14:40	20:47	S 25	3:28	9:39	15:49	22:00	Th 25		4:41	11:00	17:11	23:25	S 31			5:02	11:20	17:31	23:44												
E	Th 26	3:00	9:15	15:25	21:31	S	26	4:10	10:27	16:37	22:48	O	W 26	5:43	12:00	18:15	24:30	P	S 29	3:00	9:22	15:32	21:44	D	S 30	4:03	10:22	16:33	22:40						
	F 27	3:47	10:00	16:10	22:20	M 27	5:02	11:20	17:31	23:44	Th 27		0:31	6:58	13:09	19:23	S 31			5:02	11:20	17:31	23:44												
	S 28	4:33	10:50	17:00	23:10	Tu 28	5:58	12:20	18:32	24:30	F 28		1:46	8:08	14:23	20:37	S 31			5:02	11:20	17:31	23:44												
	S 29	5:25	11:43	17:55	24:00	S	W 29	0:47	7:08	13:27	19:43		S 29	3:00	9:22	15:32	21:44			S 31	5:02	11:20	17:31			23:44									
	M 30	0:05	6:20	12:42	18:57	Th 30	2:00	8:21	14:39	20:55	S 30		4:03	10:22	16:33	22:40	S 31			5:02	11:20	17:31	23:44												
D	Tu 31	1:10	7:25	13:48	20:05	F	31	3:15	9:35	15:47	22:00	S	S 31	5:02	11:20	17:31	23:44	P	S 31	5:02	11:20	17:31	23:44												
		2:2	9:3	1:9	9:1			2:1	9:2	2:0	9:6				1:5	9:5	1:6			10:1															

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 5.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.										NOVEMBER.										DECEMBER.									
Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.							Moon.	Day of—		Time and Height of High and Low Water.						
	W.	Mo.									W.	Mo.									W.	Mo.							
E	M	1	4:57 1.0	11:15 10.0	17:20 1.1	23:28 10.7	○	Th	1	5:58 0.7	12:10 10.4	18:15 0.8	...	A	S	1	0:00 10.1	6:10 1.2	12:16 10.0	18:26 1.1									
	Tu	2	5:43 0.5	12:00 10.4	18:01 0.7	...	F	2	0:25 10.8	6:37 0.5	12:45 10.5	18:50 0.7	S	2	0:38 10.2	6:44 1.1	12:51 10.2	19:02 1.0											
	W	3	0:10 11.1	6:24 0.2	12:38 10.7	18:40 0.4	S	3	1:02 10:8	7:10 0.5	13:17 10.5	19:24 0.7	N	M	3	1:12 10.8	7:18 1.0	13:25 10.3	19:38 0.9										
	Th	4	0:51 11.4	7:03 0.0	13:13 10.8	19:16 0.3	A	S	4	1:37 10.7	7:45 0.7	13:51 10.5	20:00 0.8	Tu	4	1:48 10.2	7:52 1.1	14:02 10.3	20:12 0.9										
	F	5	1:28 11.3	7:40 0.1	13:47 10.8	19:51 0.4	M	5	2:13 10.5	8:20 0.9	14:26 10.3	20:37 0.9	W	5	2:25 10.1	8:28 1.2	14:40 10.2	20:52 1.0											
A	S	6	2:05 11.1	8:17 0.3	14:20 10.6	20:26 0.7	N	Tu	6	2:49 10.2	8:55 1.2	15:05 10.0	21:15 1.2	Th	6	3:00 9.9	9:06 1.5	15:18 10.0	21:32 1.2										
	S	7	2:40 10.7	8:50 0.7	14:56 10.3	21:05 1.0	W	7	3:25 9.8	9:32 1.6	15:42 9.7	21:55 1.6	F	7	3:40 9.6	9:50 1.8	16:02 9.7	22:20 1.5											
	M	8	3:18 10.3	9:27 1.2	15:33 9.9	21:44 1.4	Th	8	4:04 9.3	10:15 2.1	16:27 9.2	22:40 2.0	S	8	4:27 9.3	10:38 2.1	16:51 9.4	23:09 1.7											
	Tu	9	3:55 9.8	10:05 1.7	16:15 9.5	22:25 1.9	○	F	9	4:50 9.0	11:00 2.4	17:16 9.0	23:33 2.3	○	S	9	5:18 9.1	11:30 2.3	17:45 9.3	...									
	W	10	4:36 9.2	10:46 2.2	16:59 9.0	23:10 2.3	S	10	5:46 8.7	11:57 2.7	18:13 8.8	...	E	M	10	0:05 1.9	6:15 8.9	12:27 2.4	18:45 9.2										
N	Th	11	5:20 8.7	11:32 2.6	17:45 8.6	...	S	11	0:35 2.4	6:50 8.5	13:00 2.8	19:20 8.8	Tu	11	1:05 2.0	7:20 8.9	13:32 2.4	19:48 9.3											
	F	12	0:05 2.7	6:17 8.3	12:30 8.0	18:48 8.4	M	12	1:42 2.4	7:58 8.7	14:10 2.6	20:27 9.1	W	12	2:10 1.9	8:26 9.1	14:38 2.1	20:53 9.5											
	S	13	1:10 2.8	7:25 8.2	13:36 8.1	19:57 8.5	E	Tu	13	2:45 2.0	9:01 9.1	15:14 2.1	21:29 9.7	Th	13	3:12 1.6	9:28 9.6	15:40 1.7	21:55 10.0										
	S	14	2:20 2.7	8:34 8.4	14:46 2.8	21:05 9.0	W	14	3:45 1.4	10:00 9.7	16:12 1.5	22:25 10.3	F	14	4:10 1.2	10:27 10.1	16:38 1.1	22:51 10.5											
	M	15	3:22 2.1	9:38 9.0	15:50 2.1	22:02 9.7	Th	15	4:39 0.8	10:53 10.4	17:05 0.8	23:18 11.0	P	S	15	5:05 0.7	11:20 10.5	17:30 0.5	23:45 10.9										
E	Tu	16	4:19 1.4	10:31 9.7	16:45 1.4	22:56 10.5	●	F	16	5:30 0.2	11:43 10.9	17:55 0.2	...	●	S	16	5:58 0.3	12:11 11.0	18:22 0.0	...									
	W	17	5:09 0.7	11:22 10.4	17:31 0.7	23:45 11.2	P	S	17	0:08 11.4	6:20 -0.2	12:33 11.4	18:42 -0.2	S	M	17	0:36 11.3	6:49 0.0	13:01 11.5	19:14 -0.3									
	Th	18	5:57 0.0	12:10 11.0	18:18 0.1	...	S	18	0:55 11.7	7:07 -0.4	13:20 11.6	19:30 -0.4	Tu	18	1:26 11.5	7:38 -0.2	13:50 11.6	20:02 -0.5											
	F	19	0:30 11.6	6:42 -0.4	12:54 11.4	19:01 -0.2	S	M	19	1:43 11.7	7:55 -0.3	14:07 11.6	20:17 -0.3	W	19	2:16 11.5	8:28 -0.1	14:38 11.6	20:51 -0.4										
	S	20	1:15 11.9	7:26 -0.6	13:38 11.5	19:45 -0.3	Tu	20	2:30 11.5	8:42 0.0	14:55 11.3	21:05 -0.1	Th	20	3:06 11.2	9:17 0.3	15:27 11.3	21:43 -0.1											
P	S	21	1:59 11.8	8:10 -0.5	14:23 11.4	20:33 -0.2	W	21	3:20 11.1	9:32 0.4	15:45 10.9	21:59 0.3	F	21	3:56 10.7	10:08 0.7	16:18 10.9	22:35 0.3											
	M	22	2:45 11.5	8:58 -0.1	15:10 11.1	21:21 0.2	Th	22	4:13 10.5	10:27 1.0	16:39 10.3	22:55 0.8	D	S	22	4:50 10.2	11:00 1.3	17:10 10.4	23:30 0.9										
	Tu	23	3:36 11.1	9:47 0.5	16:00 10.6	22:11 0.7	D	F	23	5:10 9.9	11:25 1.6	17:37 9.9	23:55 1.3	E	S	23	5:45 9.6	11:55 1.8	18:05 9.9	...									
	W	24	4:30 10.4	10:40 1.2	16:54 10.0	23:10 1.2	S	24	6:15 9.3	12:28 2.1	18:40 9.5	...	M	24	0:25 1.4	6:42 9.2	12:54 2.2	19:05 9.5											
	Th	25	5:28 9.7	11:42 1.8	17:56 9.4	...	S	25	1:00 1.7	7:21 9.0	13:35 2.3	19:45 9.4	Tu	25	1:25 1.8	7:40 8.9	13:54 2.4	20:04 9.2											
S	F	26	0:15 1.8	6:37 9.1	12:50 2.3	19:08 9.2	E	M	26	2:05 1.8	8:26 8.9	14:38 2.2	20:47 9.4	W	26	2:22 2.1	8:40 8.8	14:51 2.5	21:02 9.0										
	S	27	1:27 2.0	7:50 8.9	14:08 2.4	20:15 9.2	Tu	27	3:05 1.8	9:25 9.1	15:35 2.0	21:42 9.6	Th	27	3:19 2.2	9:35 8.8	15:47 2.4	21:57 9.0											
	S	28	2:37 1.9	9:00 9.0	15:12 2.2	21:19 9.5	W	28	4:00 1.7	10:15 9.3	16:24 1.8	22:34 9.8	A	F	28	4:10 2.2	10:24 9.1	16:36 2.2	22:45 9.8										
	M	29	3:39 1.6	10:00 9.3	16:08 1.8	22:15 9.9	Th	29	4:45 1.5	11:00 9.6	17:09 1.5	23:20 10.0	S	29	5:00 2.0	11:10 9.3	17:20 1.8	23:35 9.4											
	Tu	30	4:32 1.2	10:50 9.7	16:54 1.4	23:05 10.4	○	F	30	5:32 1.2	11:40 9.9	17:48 1.3	...	○	S	30	5:40 1.8	11:50 9.6	18:02 1.5	...									
D	W	31	5:17 0.9	11:32 10.1	17:37 1.0	23:45 10.7							N	M	31	0:14 9.7	6:18 1.6	12:27 10.0	18:40 1.2										

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 5.6 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Greenwich Mean Civil; ○ is midnight, 12<sup>n</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; ○, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.						FEBRUARY.						MARCH.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	M 1	2:58 9.4	9:02 1.4	15:20 9.2	21:27 1.6	☾	Th 1	3:45 8.8	9:50 2.0	16:10 8.6	22:14 2.2	A	Th 1	2:20 9.3	8:24 1.4	14:40 9.1	20:48 1.6
E	Tu 2	3:46 9.0	9:52 1.8	16:10 8.8	22:18 2.0	A	F 2	4:35 8.4	10:40 2.3	17:00 8.2	23:09 2.5		F 2	2:58 8.9	9:04 1.8	15:20 8.7	21:26 2.0
	W 3	4:38 8.6	10:44 2.2	17:05 8.5	23:11 2.3		S 3	5:30 8.1	11:38 2.6	18:00 8.0		☾	S 3	3:40 8.5	9:50 2.2	16:06 8.4	22:16 2.3
A	Th 4	4:34 8.4	11:40 2.4	18:03 8.3			S 4	0:10 2.7	6:35 8.0	12:42 2.7	19:08 8.1		S 4	4:35 8.2	10:45 2.5	17:05 8.1	23:17 2.6
	F 5	0:10 2.5	6:30 8.2	12:40 2.5	19:04 8.3		M 5	1:14 2.6	7:40 8.2	13:45 2.4	20:10 8.4	N	M 5	5:38 8.0	11:50 2.7	18:15 8.0	
	S 6	1:08 2.5	7:30 8.3	13:35 2.4	20:00 8.5	N	Tu 6	2:16 2.2	8:40 8.7	14:43 2.0	21:06 8.9		Tu 6	0:25 2.7	6:52 8.1	13:00 2.5	19:26 8.3
	S 7	2:04 2.4	8:26 8.6	14:30 2.1	20:52 8.8		W 7	3:10 1.7	9:31 9.2	15:35 1.5	21:56 9.5		W 7	1:35 2.3	8:00 8.5	14:08 2.1	20:30 8.8
	M 8	2:55 1.9	9:15 9.0	15:20 1.7	21:40 9.2		Th 8	4:00 1.2	10:18 9.8	16:22 0.9	22:40 10.0		Th 8	2:37 1.8	9:00 9.0	15:05 1.4	21:25 9.5
N	Tu 9	3:41 1.6	10:00 9.4	16:05 1.4	22:20 9.5	☉	F 9	4:45 0.6	11:00 10.3	17:05 0.4	23:22 10.4		F 9	3:32 1.1	9:50 9.9	15:58 0.7	22:14 10.2
☾	W 10	4:25 1.2	10:40 9.7	16:48 1.0	23:00 9.8		S 10	5:25 0.2	11:42 10.6	17:47 0.1		☉	S 10	4:20 0.4	10:37 10.5	16:43 0.1	23:00 10.8
	Th 11	5:05 0.8	11:20 9.9	17:25 0.7	23:40 10.0		S 11	0:02 10.7	6:08 -0.1	12:22 10.7	18:30 -0.1		S 11	5:04 -0.1	11:20 11.0	17:25 -0.3	23:42 11.1
	F 12	5:45 0.6	12:00 10.1	18:05 0.5		E	M 12	0:42 10.8	6:48 -0.1	13:05 10.8	19:10 -0.1	E	M 12	5:45 -0.5	12:00 11.2	18:08 -0.5	
	S 13	0:18 10.2	6:25 0.5	12:38 10.2	18:45 0.4	P	Tu 13	1:25 10.7	7:30 0.0	13:47 10.6	19:55 0.1	P	Tu 13	0:22 11.2	6:28 -0.5	12:45 11.2	18:49 -0.5
	S 14	1:00 10.2	7:08 0.4	13:20 10.2	19:28 0.5		W 14	2:10 10.4	8:17 0.3	14:32 10.2	20:41 0.6		W 14	1:05 11.1	7:10 -0.3	13:27 10.9	19:34 -0.2
	M 15	1:40 10.1	7:50 0.6	14:05 10.0	20:15 0.7		Th 15	2:57 9.9	9:06 0.8	15:22 9.7	21:33 1.1		Th 15	1:50 10.7	7:58 0.1	14:14 10.4	20:20 0.3
E	Tu 16	2:28 9.9	8:35 0.8	14:52 9.7	21:02 1.0	☾	F 16	3:50 9.4	10:02 1.4	16:20 9.1	22:32 1.6		F 16	2:37 10.1	8:46 0.6	15:05 9.8	21:13 1.0
☾	W 17	3:18 9.6	9:27 1.1	15:45 9.4	21:55 1.3		S 17	4:55 8.9	11:06 1.9	17:30 8.7	23:42 2.1	☾	S 17	3:33 9.5	9:42 1.3	16:04 9.2	22:14 1.6
	Th 18	4:14 9.2	10:24 1.5	16:45 9.0	22:56 1.7		S 18	6:09 8.6	12:20 2.2	18:48 8.6		S	S 18	4:37 8.9	10:48 1.9	17:12 8.7	23:24 2.1
	F 19	5:18 8.9	11:30 1.8	17:54 8.8		S	M 19	0:58 2.2	7:26 8.7	13:35 2.1	20:08 8.8		M 19	5:50 8.5	12:02 2.3	18:30 8.5	
P	S 20	0:06 1.9	6:30 8.8	12:40 1.9	19:05 8.8		Tu 20	1:11 1.9	8:36 9.0	14:45 1.7	21:08 9.3		Tu 20	0:41 2.3	7:10 8.6	13:20 2.2	19:46 8.7
	S 21	1:15 1.9	7:42 8.9	13:50 1.8	20:16 9.1		W 21	3:15 1.5	9:35 9.6	15:50 1.3	22:02 9.8		W 21	1:55 2.1	8:20 8.9	14:28 1.9	20:53 9.2
S	M 22	2:24 1.6	8:48 9.3	14:55 1.4	21:20 9.6		Th 22	4:10 1.0	10:28 10.0	16:32 0.8	22:50 10.2		Th 22	2:57 1.7	9:20 9.4	15:24 1.4	21:44 9.7
	Tu 23	3:26 1.2	9:47 9.8	15:54 0.9	22:14 10.1	●	F 23	4:56 0.6	11:12 10.4	17:15 0.5	23:34 10.4		F 23	3:50 1.2	10:10 9.9	16:14 1.0	22:30 10.1
●	W 24	4:20 0.7	10:40 10.3	16:45 0.6	23:02 10.4		S 24	5:35 0.4	11:50 10.5	17:54 0.4		●	S 24	4:35 0.8	10:51 10.2	16:55 0.7	23:10 10.3
	Th 25	5:08 0.4	11:25 10.5	17:30 0.4	23:47 10.5		S 25	0:10 10.4	6:11 0.4	12:28 10.4	18:29 0.5	E	S 25	5:14 0.6	11:28 10.3	17:30 0.6	23:46 10.3
	F 26	5:50 0.3	12:09 10.5	18:12 0.3		E	M 26	0:45 10.2	6:45 0.6	13:00 10.1	19:00 0.7		M 26	5:46 0.6	12:00 10.2	18:00 0.6	
	S 27	0:30 10.5	6:30 0.4	12:48 10.4	18:50 0.5		Tu 27	1:15 10.0	7:16 0.8	13:30 9.8	19:33 0.9		Tu 27	0:18 10.1	6:16 0.7	12:32 9.9	18:30 0.8
	S 28	1:06 10.3	7:10 0.6	13:28 10.1	19:30 0.7		W 28	1:46 9.6	7:48 1.1	14:04 9.5	20:06 1.2		W 28	0:45 9.8	6:48 0.9	13:00 9.7	19:00 1.0
E	M 29	1:45 10.0	7:48 0.8	14:04 9.8	20:07 1.0							A	Th 29	1:14 9.6	7:15 1.1	13:30 9.4	19:30 1.2
	Tu 30	2:23 9.6	8:26 1.2	14:44 9.4	20:46 1.4								F 30	1:45 9.3	7:48 1.4	14:00 9.1	20:08 1.5
	W 31	3:02 9.2	9:05 1.6	15:25 9.0	21:27 1.8								S 31	2:20 9.0	8:27 1.7	14:40 8.8	20:48 1.8

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The time used is Kingstown Mean Local Civil, for the meridian 6° 08' W. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☽, 1st quar.; ☾, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

MAY.										JUNE.											
Moon.		Day of—		Time and Height of High and Low Water.						Moon.		Day of—		Time and Height of High and Low Water.							
	W. Mo.												W. Mo.								
N	S	1	3:00 8.7	9:10 2.0	15:25 8.5	21:38 2.2	D	Tu	1	3:24 8.6	9:38 2.1	15:54 8.5	22:06 2.1	E	F	1	5:08 8.8	11:15 1.8	17:35 8.8	23:48 1.8	
D	M	2	3:54 8.4	10:05 2.3	16:22 8.5	22:35 2.4	W	2	4:25 8.5	10:36 2.2	17:00 8.4	23:11 2.2	S	2	6:10 8.9	12:20 1.7	18:44 9.1				
	Tu	3	4:56 8.2	11:10 2.5	17:34 8.2	23:46 2.5	Th	3	5:34 8.5	11:45 2.2	18:10 8.6		S	3	6:52 1.5	7:16 9.3	13:25 1.3	19:48 9.5			
	W	4	6:10 8.2	12:20 2.4	18:46 8.3		F	4	6:20 2.0	6:45 8.8	12:55 1.8	19:17 9.0	M	4	1:55 1.1	8:18 9.7	14:25 0.9	20:45 10.0			
	Th	5	6:55 2.2	7:24 8.6	13:30 2.0	19:55 8.9	S	5	1:27 1.4	7:50 9.3	14:00 1.3	20:20 9.5	Tu	5	2:55 0.7	9:15 10.2	15:22 0.5	21:42 10.4			
	F	6	2:02 1.7	8:27 9.2	14:11 1.4	20:54 9.6	S	6	2:26 1.0	8:50 10.0	14:55 0.7	21:15 10.3	P	W	6	3:50 0.3	10:08 10.5	16:15 0.1	22:34 10.8		
E	S	7	3:00 1.0	9:20 10.0	15:26 0.6	21:46 10.3	M	7	3:22 0.4	9:40 10.5	15:40 0.1	22:06 10.8	Th	7	4:42 -0.1	11:00 10.9	17:06 -0.2	23:24 10.9			
O	S	8	3:50 0.8	10:10 10.6	16:15 0.0	22:33 10.9	P	Tu	8	4:14 -0.1	10:30 11.0	16:36 -0.3	22:54 11.1	S	F	8	5:30 -0.2	11:48 10.9	17:54 -0.2		
O	M	9	4:40 -0.3	10:55 11.1	17:00 -0.4	23:16 11.2	W	9	5:00 -0.4	11:20 11.2	17:24 -0.5	23:40 11.2	S	9	6:12 10.9	6:20 -0.1	12:36 10.8	18:42 0.0			
P	Tu	10	5:23 -0.6	11:40 11.3	17:45 -0.7		Th	10	5:48 -0.5	12:04 11.1	18:10 -0.4		S	10	1:00 10.6	7:06 0.2	13:25 10.5	19:31 0.3			
	W	11	6:00 11.8	6:08 -0.6	12:23 11.3	18:29 -0.6	F	11	6:27 11.1	6:35 -0.3	12:50 10.9	18:59 -0.1	M	11	1:50 10.3	7:55 0.5	14:15 10.1	20:22 0.8			
	Th	12	6:45 11.2	6:50 -0.3	13:09 11.0	19:15 -0.2	S	S	12	1:15 10.7	7:22 0.1	13:40 10.5	19:46 0.3	Tu	12	2:48 9.9	8:47 1.0	15:10 9.6	21:15 1.2		
	F	13	1:32 10.8	7:39 0.0	13:56 10.5	20:03 0.3	S	13	2:05 10.3	8:12 0.6	14:34 10.0		C	W	13	3:44 9.4	9:44 1.4	14:11 9.2	22:12 1.6		
S	S	14	2:21 10.2	8:28 0.6	14:47 9.9	20:56 0.9	M	14	3:00 9.7	9:08 1.1	15:30 9.4	21:40 1.4	Th	14	4:44 9.1	10:42 1.8	17:05 8.9	23:10 1.9			
C	S	15	3:16 9.6	9:25 1.2	15:46 9.8	21:56 1.6	C	Tu	15	4:00 9.2	10:10 1.7	16:32 9.0	22:40 1.9	E	F	15	5:32 8.8	11:40 2.0	17:05 8.7		
	M	16	4:18 9.0	10:30 1.8	16:55 8.8	23:08 2.1	W	16	5:06 8.9	11:18 2.0	17:40 8.8	23:50 2.1	S	16	6:10 2.1	8:35 8.7	12:40 2.1	19:05 8.7			
	Tu	17	5:30 8.7	11:42 2.2	18:10 8.6		Th	17	6:15 8.8	12:25 2.1	18:50 8.8		S	17	1:10 2.1	7:34 8.8	13:37 2.1	20:00 8.5			
	W	18	6:20 2.2	6:43 8.7	12:56 2.2	19:24 8.8	E	F	18	6:56 2.1	7:20 8.9	13:27 2.0	19:50 9.0	A	M	18	2:04 2.0	8:28 8.9	14:30 1.9	20:50 9.0	
	Th	19	1:30 2.1	7:55 8.9	14:02 1.9	20:25 9.1	S	19	1:55 1.9	8:17 9.1	14:22 1.8	20:45 9.3	Tu	19	2:54 1.9	9:16 9.1	15:17 1.8	21:35 9.1			
	F	20	2:32 1.7	8:54 9.8	14:59 1.5	21:17 9.5	S	20	2:46 1.6	9:08 9.4	15:10 1.5	21:30 9.5	W	20	3:40 1.7	9:58 9.2	16:00 1.6	22:15 9.6			
E	S	21	3:24 1.4	9:42 9.7	15:46 1.2	22:05 9.9	M	21	3:35 1.4	9:50 9.5	15:54 1.4	22:11 9.6	●	Th	21	4:18 1.5	10:35 9.3	16:35 1.4	22:54 9.4		
	S	22	4:06 1.1	10:24 9.9	16:26 1.0	22:44 10.0	A	Tu	22	4:14 1.3	10:50 9.6	16:30 1.3	22:50 9.6	N	F	22	4:55 1.4	11:14 9.4	17:11 1.3	23:29 9.4	
●	M	23	4:45 0.9	11:02 10.0	17:00 0.9	23:18 10.0	●	W	23	4:48 1.8	11:08 9.6	17:04 1.2	23:20 9.5		S	23	5:30 1.2	11:48 9.4	17:47 1.2		
	Tu	24	5:18 0.9	11:34 9.9	17:30 0.9	23:50 9.8	Th	24	5:20 1.2	11:38 9.8	17:37 1.2	23:50 9.4		S	24	6:02 9.5	6:05 1.2	12:20 9.5	18:25 1.1		
A	W	25	5:48 1.0	12:02 9.7	18:02 1.0		F	25	5:50 1.3	12:06 9.4	18:06 1.8			M	25	6:38 9.5	6:42 1.1	12:55 9.5	19:02 1.1		
	Th	26	6:15 9.6	6:17 1.1	12:30 9.5	18:30 1.2	N	S	26	6:21 9.4	6:25 1.3	12:38 9.3	18:40 1.3		Tu	26	1:15 9.5	7:22 1.1	13:25 9.5	19:44 1.1	
	F	27	6:45 9.4	6:50 1.2	13:00 9.3	19:04 1.3	S	27	6:55 9.3	7:00 1.3	13:12 9.2	19:19 1.4		W	27	2:00 9.4	8:06 1.2	14:20 9.4	20:29 1.2		
	S	28	1:16 9.3	7:20 1.4	13:34 9.2	19:40 1.5	M	28	1:32 9.2	7:39 1.4	13:52 9.1	20:00 1.5		Th	28	2:46 9.3	8:54 1.3	15:10 9.3	21:22 1.4		
N	S	29	1:52 9.1	7:58 1.6	14:11 9.0	20:20 1.7	Tu	29	2:15 9.0	8:24 1.6	14:38 9.0	20:48 1.7	D	F	29	3:25 9.2	9:49 1.5	16:05 9.1	22:16 1.5		
	M	30	2:34 8.8	8:46 1.8	14:58 8.7	21:10 2.0	W	30	3:04 8.9	9:15 1.7	15:30 8.9	21:40 1.8	E	S	30	4:35 9.1	10:45 1.6	17:05 9.0	23:17 1.6		
	Th	31					D	Th	31	4:00 8.8	10:12 1.8	16:30 8.8	22:42 1.8								

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 5.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus sign is before the height, in which case subtract it.

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●, new moon; D, 1st quar.; C, full moon; Q, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.						AUGUST.						SEPTEMBER.					
Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.				Moon.	Day of—	Time and Height of High and Low Water.			
	W. Mo.						W. Mo.						W. Mo.				
	S 1	5:40	11:50	18:11	9.0	P	W 1	1:10	7:34	13:45	20:10		S 1	3:10	9:32	15:37	21:57
		9.0	1.6	9.0				1.8	9.0	1.7	9.1	○		1.3	9.7	1.0	10.0
	M 2	0:23	6:45	12:55	19:19	S	Th 2	2:19	8:42	14:48	21:12		S 2	4:04	10:22	16:28	22:45
		1.6	9.1	1.6	9.2			1.5	9.4	1.3	9.6			0.8	10.2	0.6	10.4
	Tu 3	1:30	7:54	14:02	20:26	F	3	3:20	9:40	15:48	22:09		M 3	4:50	11:08	17:12	23:28
		1.4	9.3	1.3	9.6			1.1	9.9	0.9	10.1			0.4	10.5	0.3	10.6
P	W 4	2:32	8:55	15:00	21:25	○	S 4	4:15	10:36	16:40	23:00		Tu 4	5:30	11:50	17:50	
		1.1	9.8	0.9	10.0			0.6	10.3	0.5	10.5			0.2	10.6	0.2	
S	Th 5	3:30	9:54	16:00	22:20	S	5	5:05	11:22	17:28	23:45	E	W 5	0:08	6:10	12:25	18:28
		0.7	10.2	0.5	10.4			0.3	10.6	0.2	10.6			10.6	0.3	10.5	0.4
○	F 6	4:25	10:46	16:51	23:10	M	6	5:50	12:06	18:10			Th 6	0:43	6:45	13:00	19:00
		0.4	10.5	0.2	10.6			0.2	10.6	0.2				10.3	0.5	10.2	0.6
	S 7	5:16	11:35	17:40		Tu	7	0:28	6:32	12:48	18:54		F 7	1:15	7:19	13:35	19:36
		0.1	10.7	0.1				10.6	0.2	10.5	0.3			10.0	0.8	9.8	1.0
	S 8	0:00	6:04	12:21	18:28	E	W 8	1:10	7:12	13:29	19:32		S 8	1:52	7:55	14:09	20:10
		10.7	0.1	10.7	0.1			10.4	0.4	10.2	0.6			9.6	1.2	9.4	1.4
	M 9	0:45	6:50	13:08	19:14	Th	9	1:46	7:50	14:10	20:12		S 9	2:28	8:30	14:46	20:52
		10.6	0.2	10.4	0.3			10.1	0.7	9.9	0.9			9.1	1.6	8.9	1.8
	Tu 10	1:32	7:35	13:55	20:00	F	10	2:29	8:32	14:50	20:54	A	M 10	3:10	9:15	15:30	21:38
		10.3	0.5	10.2	0.6			9.7	1.1	9.4	1.4	○		8.7	2.0	8.5	2.2
	W 11	2:16	8:22	14:40	20:45	S	11	3:10	9:15	15:34	21:36		Tu 11	3:55	10:02	16:20	22:31
		10.0	0.8	9.8	1.0			9.2	1.6	9.0	1.8			8.3	2.4	8.1	2.5
E	Th 12	3:05	9:10	15:30	21:35	○	S 12	3:57	10:00	16:20	22:26	N	W 12	4:52	11:00	17:25	23:33
		9.6	1.2	9.4	1.4			8.7	2.0	8.5	2.2			8.0	2.7	7.9	2.7
○	F 13	3:55	10:00	16:20	22:25	A	M 13	4:50	10:54	17:15	23:22		Th 13	6:00	12:08	18:34	
		9.2	1.7	9.0	1.8			8.3	2.4	8.2	2.5			7.9	2.7	8.0	
	S 14	4:48	10:50	17:15	23:20	Tu	14	5:46	11:52	18:18			F 14	0:42	7:08	13:16	19:40
		8.8	2.0	8.6	2.2			8.1	2.6	8.0				2.7	8.1	2.5	8.4
	S 15	5:44	11:48	18:12		W	15	0:25	6:50	12:55	19:24		S 15	1:50	8:10	14:15	20:40
		8.5	2.3	8.4				2.7	8.0	2.7	8.1			2.3	8.7	2.0	9.0
A	M 16	0:16	6:42	12:46	19:10	N	Th 16	1:26	7:54	13:58	20:24		S 16	2:45	9:05	15:10	21:31
		2.4	8.4	2.4	8.4			2.5	8.3	2.4	8.5			1.7	9.3	1.3	9.6
	Tu 17	1:15	7:40	13:44	20:10	F	17	2:26	8:50	14:52	21:15		M 17	3:35	9:54	15:58	22:15
		2.4	8.4	2.3	8.5			2.2	8.7	2.0	9.0			1.0	10.0	0.7	10.3
	W 18	2:10	8:35	14:34	21:00	S	18	3:18	9:38	15:42	22:00	●	Tu 18	4:20	10:36	16:40	22:56
		2.3	8.6	2.1	8.8			1.7	9.2	1.4	9.5			0.4	10.5	0.1	10.8
	Th 19	3:01	9:24	15:27	21:48	S	19	4:02	10:21	16:25	22:42	E	W 19	5:00	11:18	17:22	23:36
		2.0	8.9	1.8	9.1			1.2	9.7	0.9	10.0			—0.1	10.9	—0.3	11.0
N	F 20	3:48	10:07	16:10	22:28	●	M 20	4:46	11:04	17:06	23:24		Th 20	5:42	11:58	18:02	
		1.7	9.2	1.5	9.4			0.7	10.1	0.5	10.3			—0.4	11.0	—0.4	
●	S 21	4:30	10:48	16:50	23:06	Tu	21	5:25	11:42	17:45		P	F 21	0:20	6:25	12:40	18:45
		1.4	9.5	1.2	9.6			0.3	10.4	0.2				11.1	—0.4	11.0	—0.3
	S 22	5:09	11:27	17:28	23:44	W	22	0:00	6:05	12:20	18:25		S 22	1:00	7:06	13:25	19:28
		1.0	9.7	0.9	9.8			10.5	0.1	10.6	0.0			10.9	—0.2	10.8	0.0
	M 23	5:48	12:00	18:05		E	Th 23	0:40	6:45	13:00	19:05		S 23	1:46	7:53	14:10	20:17
		0.8	9.9	0.7				10.6	0.0	10.6	0.1			10.5	0.3	10.2	0.5
	Tu 24	0:20	6:26	12:40	18:45	F	24	1:22	7:28	13:42	19:50		M 24	2:34	8:44	15:00	21:12
		9.9	0.7	10.0	0.6			10.5	0.2	10.4	0.3			9.9	0.8	9.6	1.2
	W 25	1:00	7:05	13:20	19:25	S	25	2:05	8:12	14:28	20:35	♪	Tu 25	3:30	9:40	16:00	22:14
		10.0	0.6	10.0	0.6			10.2	0.5	10.0	0.7	S		9.3	1.5	9.0	1.8
	Th 26	1:40	7:50	14:04	20:10	S	26	2:53	9:00	15:20	21:28		W 26	4:36	10:48	17:13	23:26
		10.0	0.7	9.9	0.7			9.8	1.0	9.5	1.2			8.8	2.0	8.6	2.2
E	F 27	2:25	8:34	14:50	20:57	○	M 27	3:48	10:00	16:19	22:20		Th 27	5:50	12:04	18:32	
		9.8	0.8	9.7	1.0			9.3	1.5	9.0	1.7			8.5	2.2	8.5	
○	S 28	3:15	9:24	15:40	21:52	Tu	28	4:52	11:04	17:29	23:40		F 28	0:43	7:11	13:20	19:46
		9.6	1.2	9.4	1.3			8.8	1.9	8.7	2.1			2.2	8.7	2.1	8.9
	S 29	4:10	10:22	16:40	22:50	S	W 29	6:07	12:17	18:45			S 29	1:55	8:22	14:26	20:49
		9.2	1.5	9.1	1.6			8.6	2.1	8.6				1.9	9.1	1.7	9.4
	M 30	5:12	11:24	17:46	23:58	Th	30	0:56	7:22	13:32	20:00		S 30	2:55	9:15	15:24	21:44
		8.9	1.8	8.8	1.8			2.1	8.7	2.0	8.9			1.4	9.7	1.1	9.9
	Tu 31	6:21	12:34	19:00		F	31	2:06	8:32	14:40	21:05						
		8.8	1.9	8.8				1.8	9.2	1.5	9.5						

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 5.4 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Kingstown Mean Local Civil, for the meridian 6° 08' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 5:47 is 3:47 p. m.

●, new moon; ○, 1st quar.; ○, full moon; ○, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.





JANUARY.					FEBRUARY													
Moon	Day of— W. Mo.	Time and Height of High and Low Water.				Moon	Day of— W. Mo.	Time and Height of High and Low Water.				Moon	Day of— W. Mo.	Time and Height of High and Low Water.				
E D	M 1	3:00 1.9	9:04 9.7	15:26 2.8	21:28 9.4	D A	Th 1	3:46 2.9	9:51 8.8	16:10 3.2	22:14 8.6	A D	Th 1	2:24 2.1	8:27 9.7	14:46 2.4	20:46 9.4	
	Tu 2	3:50 2.5	9:54 9.1	16:15 2.8	22:20 8.8		F 2	4:35 3.4	10:40 8.4	17:00 3.6	23:06 8.2		II 2	3:00 2.7	9:06 9.1	15:17 2.9	21:24 8.8	
	W 3	4:44 3.1	10:46 8.6	17:14 3.3	23:15 8.4		S 3	5:30 3.8	11:38 8.1	18:04 3.8	23:58 8.2		D S 3	3:36 3.2	9:45 8.5	16:00 3.5	22:10 8.8	
A	Th 4	5:42 3.4	11:46 8.3	18:12 3.5	24:14 8.4	S	4	6:30 8.0	12:45 8.8	19:13 8.0	24:58 8.7	S	4	4:28 3.7	10:40 8.1	17:00 3.8	23:12 8.0	
	F 5	6:44 3.8	12:54 8.5	19:15 8.8	25:15 8.4		M 5	7:35 8.2	13:50 8.5	20:17 8.4	25:58 8.2		N M 5	5:24 3.9	11:50 7.9	18:17 3.9	24:14 8.9	
	S 6	7:50 3.4	14:02 8.3	20:20 8.6	26:18 8.1		N Tu 6	8:44 8.7	14:58 2.8	21:12 9.0	26:58 2.5		Tu 6	6:28 8.0	13:00 3.7	19:26 8.2	25:15 3.5	
	S 7	9:00 3.7	15:10 2.9	21:28 8.9	27:22 2.5	W	7	9:58 9.4	16:04 2.1	22:00 9.8	27:58 1.7	W	7	7:44 8.5	14:14 8.1	20:40 8.8	26:18 2.7	
	M 8	10:14 3.2	16:18 2.3	22:40 9.5	28:28 2.1		Th 8	11:16 10.2	17:08 1.3	22:42 10.6	28:58 1.0		Th 8	8:58 9.3	15:10 2.7	21:32 9.7	27:22 1.7	
	N Tu 9	11:30 3.4	17:26 10.4	23:56 16:05	29:36 22:22		O F 9	12:38 10.9	18:12 0.6	23:25 11.2	29:58 0.4		F 9	10:14 10.2	16:00 1.3	22:18 10.7	28:28 0.8	
O	W 10	12:46 10.8	18:34 1.2	25:04 10.6	30:46 1.0	S	10	1:06 11.5	19:16 0.2	24:08 11.7	30:58 0.2	C	S 10	11:30 11.1	17:00 0.4	23:28 11.5	31:58 0.1	
	Th 11	1:06 10.8	19:42 0.9	26:12 11.0	31:58 0.8		S 11	2:30 0.0	20:20 11.8	24:50 0.0	31:58 11.9		S 11	12:46 11.8	18:00 -0.2	24:38 12.1	33:10 -0.4	
	F 12	2:30 11.1	20:50 0.7	27:20 11.2	33:10 0.8		E M 12	3:58 -0.1	21:24 11.9	25:32 0.0	33:10 11.8		E M 12	5:50 12.3	12:04 -0.6	18:10 12.4	35:34 0.0	
	S 13	3:58 0.6	22:02 11.8	28:28 0.6	34:22 11.2	P	Tu 13	5:30 0.1	22:28 11.7	26:14 0.3	34:22 11.5	P	Tu 13	7:28 -0.6	13:46 12.4	19:58 -0.5	36:46 12.8	
	S 14	5:30 0.7	23:14 11.2	29:36 0.7	35:34 11.1		W 14	7:06 0.5	23:32 11.2	27:00 0.8	35:34 10.9		W 14	9:14 -0.4	14:58 12.2	21:00 -0.2	37:58 11.9	
	M 15	7:06 0.9	24:26 10.9	30:46 1.0	36:46 10.8		Th 15	8:44 1.1	24:36 10.6	27:58 1.1	36:46 10.3		Th 15	10:26 0.1	15:58 11.7	19:18 0.4	39:10 11.8	
E	Tu 16	8:44 1.2	25:38 10.8	31:58 1.4	37:58 10.3	C	F 16	10:26 1.8	25:40 9.9	28:58 2.1	37:58 9.6	C	F 16	12:38 0.8	16:46 8.9	19:58 1.2	40:22 10.2	
	W 17	9:58 1.6	26:50 10.1	33:10 1.9	39:10 9.9		S 17	12:12 2.4	26:42 9.3	29:58 2.5	39:10 9.1		S 17	1:06 1.6	17:00 10.1	20:40 2.0	41:34 9.7	
	Th 18	11:16 2.1	28:02 9.6	34:22 2.8	40:22 9.4		S 18	1:06 2.6	17:00 9.0	20:40 2.7	40:22 8.9		S 18	2:30 2.3	18:00 9.3	21:32 2.6	42:46 9.0	
P	F 19	12:02 2.5	29:14 9.8	35:34 2.6	41:34 9.2	S	M 19	1:02 9.0	17:32 2.6	18:40 9.1	41:34 2.4	M	19	3:58 2.8	12:02 8.9	18:32 2.9	43:58 2.6	
	S 20	0:10 9.2	6:34 2.6	12:46 9.2	19:10 2.6		Tu 20	2:16 9.4	8:40 2.1	14:50 9.6	21:11 1.8		Tu 20	5:44 8.9	13:15 7.7	19:25 9.0	45:10 2.6	
	S 21	1:22 9.4	7:46 2.3	13:58 9.6	20:21 2.0		W 21	3:18 10.0	9:38 1.4	15:45 10.3	22:06 1.1		W 21	7:06 9.2	14:26 2.3	20:36 9.4	46:22 2.0	
S	M 22	2:29 9.8	8:54 1.7	15:00 10.1	21:21 1.4	●	Th 22	4:10 10.6	10:28 0.8	16:35 11.4	22:52 0.6	Th 22	8:02 9.7	9:24 1.6	15:29 10.0	21:50 1.3		
	Tu 23	3:27 10.4	9:48 1.1	15:56 10.7	22:18 0.8		F 23	4:55 11.1	11:12 0.4	17:18 11.8	23:32 0.3		F 23	9:32 10.3	10:11 1.0	16:17 10.6	22:32 0.8	
	W 24	4:20 11.0	10:40 0.5	16:45 11.2	23:02 0.8		S 24	5:35 11.4	11:52 0.2	17:54 11.4	24:06 0.0		S 24	10:26 10.8	10:53 0.6	16:56 11.0	23:12 0.5	
	Th 25	5:09 11.4	11:28 0.2	17:30 11.5	23:48 0.2	E	S 25	6:12 0.2	12:18 11.4	12:30 0.3	23:50 11.8	E	S 25	5:16 11.2	11:30 0.4	17:34 11.2	23:50 0.4	
	F 26	6:50 11.5	12:08 0.2	18:14 11.5	24:48 0.0		M 26	6:48 0.6	12:50 11.2	13:04 0.7	24:06 11.0		M 26	6:48 11.2	12:08 0.5	18:05 11.2	24:48 0.0	
	S 27	8:00 0.2	13:04 11.4	19:10 0.4	25:51 11.3		Tu 27	7:20 0.9	13:28 10.8	13:36 1.2	24:58 10.5		Tu 27	8:20 0.6	13:02 11.1	19:05 10.8	25:51 10.9	
E	S 28	1:10 0.5	7:14 11.1	13:30 0.8	19:32 10.9	W	28	7:58 1.4	13:56 10.2	14:06 1.8	25:10 10.0	W	28	9:00 1.0	6:52 10.7	13:05 1.2	19:46 10.5	
	M 29	1:47 1.0	7:54 10.6	14:08 1.3	20:10 10.3		A	Th 29	1:20 1.4	7:24 10.8	13:34 1.7		19:37 10.1	F 30	1:50 2.0	7:54 9.8	14:05 2.3	20:10 9.5
	Tu 30	2:28 1.6	8:30 10.0	14:46 1.9	20:46 9.7			S 31	2:20 2.5	8:28 9.8	14:40 2.7		19:45 9.4					
W 31	3:05 2.3	9:10 9.4	15:25 2.6	21:28 9.1														

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day, a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 6.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Queenstown Mean Local Civil for the meridian, 8° 18' W., 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon, for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee

APRIL.										MAY.										JUNE.															
Moon.	Day of		Time and Height of High and Low Water.								Moon.	Day of		Time and Height of High and Low Water.								Moon.	Day of		Time and Height of High and Low Water.										
	W.	Mo.										W.	Mo.										W.	Mo.											
N	S	1	2:55	9:05	15:20	21:30	2.8	8.9	3.0	8.7	D	Tu	1	3:24	9:35	15:52	22:06	3.0	8.8	3.1	8.7	E	F	1	5:14	11:26	17:50	2.8	9.0	2.7					
D	M	2	3:45	10:00	16:15	22:30	3.2	8.5	3.4	8.4	W	2	4:25	10:40	17:00	23:15	3.2	8.6	3.3	8.6	E	S	2	0:00	6:25	12:34	19:00	9.2	2.6	9.3	2.3				
	Tu	3	4:50	11:05	17:30	23:44	3.6	8.3	3.6	8.3	Th	3	5:40	11:52	18:20		3.2	8.7	3.1		S	3	1:06	7:29	13:37	20:00	9.6	2.0	9.9	1.7					
	W	4	6:12	12:25	18:54		3.5	8.4	3.3		F	4	0:30	6:56	13:05	19:32	8.9	2.8	9.2	2.5	M	4	2:08	8:29	14:35	20:56	10.2	1.3	10.5	1.0					
	Th	5	1:02	7:30	13:38	20:05	8.6	3.0	9.0	2.6	S	5	1:40	8:04	14:10	20:31	9.5	2.0	9.9	1.6	Tu	5	3:04	9:24	15:30	21:58	10.9	0.7	11.2	0.4					
	F	6	2:10	8:34	14:40	21:02	9.4	2.1	9.9	1.6	E	S	6	2:37	8:58	15:05	21:24	10.4	1.1	10.8	0.7	P	W	6	3:56	10:14	16:20	22:40	11.5	0.1	11.7	-0.1			
	S	7	3:08	9:28	15:34	21:52	10.4	1.1	10.9	0.6	M	7	3:30	9:48	15:54	22:12	11.2	0.3	11.6	0.0	Th	7	4:46	11:02	17:10	23:26	11.9	-0.2	12.0	-0.3					
E	S	8	3:58	10:16	16:20	22:36	11.3	0.2	11.7	-0.2	O	Tu	8	4:20	10:35	16:40	23:00	11.9	-0.3	12.1	-0.5	S	F	8	5:34	11:50	17:56		12.0	-0.2	12.0				
O	M	9	4:45	11:00	17:06	23:24	12.1	-0.5	12.3	-0.7	P	W	9	5:15	11:22	17:28	23:45	12.3	-0.6	12.4	-0.6	S	S	9	0:15	6:21	12:38	18:45	-0.2	11.9	0.0	11.7			
P	Tu	10	5:27	11:42	17:50		12.5	-0.8	12.6		Th	10	5:50	12:06	18:14		12.4	-0.6	12.3		S	S	10	1:05	7:10	13:25	19:35	0.2	11.5	0.4	11.2				
	W	11	0:04	6:10	12:26	18:34	-0.8	12.6	-0.8	12.5	F	11	0:30	6:38	12:52	19:00	-0.4	12.2	-0.2	11.9	M	11	1:54	7:57	14:16	20:24	0.7	10.9	1.1	10.5					
	Th	12	0:49	6:55	13:12	19:18	-0.6	12.3	-0.4	12.1	S	S	12	1:17	7:24	13:42	19:48	0.0	11.6	0.3	11.3	Tu	12	2:44	8:50	15:11	21:16	1.4	10.2	1.7	9.9				
	F	13	1:35	7:44	13:57	20:05	-0.1	11.7	0.3	11.4	S	S	13	2:08	8:14	14:34	20:40	0.7	10.9	1.1	10.5	W	13	3:40	9:45	16:10	22:14	2.1	9.5	2.3	9.3				
S	S	14	2:24	8:30	14:50	20:58	0.7	10.9	1.1	10.5	M	14	3:00	9:08	15:30	21:38	1.5	10.1	1.9	9.7	Th	14	4:40	10:45	17:11	23:15	2.6	9.0	2.8	8.8					
C	S	15	3:16	9:25	15:48	21:56	1.5	10.0	2.0	9.6	C	Tu	15	4:00	10:10	16:38	22:45	2.2	9.3	2.6	9.1	E	F	15	5:40	11:47	18:12		2.9	8.7	3.0				
	M	16	4:20	10:30	16:58	23:07	2.4	9.2	2.7	8.9	W	16	5:10	11:20	17:48	23:55	2.8	8.9	2.9	8.7	S	16	0:18	6:45	12:48	19:15	8.7	3.0	8.8	3.0					
	Tu	17	5:36	11:46	18:18		2.9	8.7	3.0		Th	17	6:25	12:32	19:00		2.9	8.7	2.8		S	17	1:16	7:42	13:42	20:08	8.7	2.9	8.8	2.7					
	W	18	0:27	6:58	13:05	19:35	8.7	2.9	8.7	2.8	E	F	18	1:06	7:34	13:38	20:02	8.8	2.7	8.9	2.6	A	M	18	2:08	8:30	14:32	20:56	8.9	2.6	9.1	2.4			
	Th	19	1:43	8:08	14:14	20:38	8.9	2.6	9.1	2.3	S	19	2:05	8:25	14:30	20:52	9.1	2.4	9.3	2.1	Tu	19	2:55	9:17	15:15	21:36	9.3	2.2	9.4	2.1					
	F	20	2:42	9:03	15:08	21:26	9.4	2.0	9.6	1.7	S	20	2:55	9:15	15:16	21:33	9.5	2.0	9.6	1.8	W	20	3:37	9:55	15:55	22:14	9.6	1.9	9.8	1.8					
E	S	21	3:30	9:50	15:50	22:10	9.9	1.5	10.1	1.3	M	21	3:35	9:55	15:54	22:12	9.8	1.6	10.0	1.6	Th	21	4:14	10:34	16:35	22:50	10.0	1.6	10.2	1.5					
	S	22	4:10	10:28	16:30	22:46	10.3	1.1	10.5	1.0	A	Tu	22	4:14	10:30	16:30	22:48	10.1	1.4	10.3	1.3	N	F	22	4:58	11:08	17:10	23:26	10.3	1.4	10.4	1.3			
	M	23	4:46	11:00	17:02	23:20	10.6	0.9	10.7	0.9	W	23	4:48	11:02	17:02	23:17	10.4	1.3	10.5	1.3	S	23	5:30	11:45	17:49		10.5	1.3	10.6						
	Tu	24	5:18	11:34	17:32	23:50	10.5	0.9	10.8	1.0	Th	24	5:20	11:36	17:35	23:50	10.5	1.3	10.5	1.3	S	24	0:04	6:10	12:22	18:27	1.2	10.6	1.2	10.6					
A	W	25	5:49	12:04	18:05		10.8	1.1	10.7		F	25	5:52	12:08	18:10		10.5	1.3	10.5		M	25	0:41	6:48	13:02	19:10	1.3	10.6	1.3	10.5					
	Th	26	0:18	6:18	12:33	18:35	1.1	10.6	1.3	10.5	N	S	26	0:22	6:27	12:40	18:45	1.4	10.4	1.5	10.3	Tu	26	1:24	7:28	13:44	19:51	1.4	10.4	1.5	10.3				
	F	27	0:46	6:50	13:02	19:06	1.4	10.4	1.6	10.2	S	27	1:00	7:05	13:18	19:21	1.6	10.2	1.7	10.1	W	27	2:05	8:14	14:30	20:37	1.7	10.1	1.8	10.0					
	S	28	1:19	7:23	13:35	19:41	1.7	10.0	2.0	9.9	M	28	1:35	7:42	13:56	20:04	1.9	9.9	2.1	9.7	Th	28	2:55	9:02	15:22	21:30	2.0	9.8	2.1	9.7					
N	S	29	1:55	8:00	14:14	20:20	2.1	9.6	2.3	9.4	Tu	29	2:19	8:26	14:44	20:51	2.2	9.6	2.4	9.4	D	F	29	3:47	9:56	16:15	22:28	2.2	9.6	2.3	9.5				
	M	30	2:34	8:43	14:56	21:08	2.5	9.2	2.7	9.0	W	30	3:10	9:18	15:36	21:47	2.5	9.2	2.7	9.1	E	S	30	4:47	10:58	17:18	23:26	2.4	9.2	2.5	9.4				
											Th	31	4:06	10:18	16:40	22:50	2.8	9.1	2.8	9.0															

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region and which is 5.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Queenstown Mean Local Civil for the meridian 8° 18' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a.m.), all greater are in the afternoon (p.m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p.m.

●, new moon; ☾, 1st quar.; ○, full moon; ☿, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, F, moon in apogee or perigee.

JULY.									
Moon	Day of W. Mo.	Time and Height		Low					
S	1	5:52	12:02	18:25	2:4	P	W	I	1:20
		2.4	9.4	2.4					7:45
M	2	0:35	7:00	13:06	19:34	S	Th	2	2:26
		9.5	2.2	9.7	2.0				8:51
Tu	3	1:40	8:08	14:11	20:34	F	3	3:25	9:46
		9.9	1.8	10.1	1.5				15:54
W	4	2:42	9:05	15:10	21:32	S	4	4:22	10:40
		10.4	1.2	10.6	0.9				16:44
Th	5	3:38	9:56	16:05	22:24	S	5	5:08	11:26
		10.9	0.7	11.2	0.4				17:30
F	6	4:30	10:49	16:55	23:12	M	6	5:54	12:10
		11.4	0.2	11.5	0.1				18:14
S	7	5:20	11:36	17:42		Tu	7	6:30	12:51
		11.6	0.1	11.6					18:56
S	8	0:00	6:05	12:25	18:30	E	W	8	1:11
		0.1	11.6	0.2	11.5				7:15
M	9	0:50	6:51	13:10	19:16	Th	9	1:52	7:55
		0.3	11.4	0.5	11.2				14:13
Tu	10	1:34	7:40	13:56	20:02	F	10	2:38	8:35
		0.7	10.9	1.0	10.7				14:52
W	11	2:20	8:26	14:45	20:48	S	11	3:12	9:14
		1.2	10.4	1.5	10.1				15:22
Th	12	3:08	9:12	15:34	21:36	S	12	3:55	10:00
		1.8	9.8	2.2	9.4				16:18
F	13	3:56	10:00	16:22	22:26	A	M	13	4:44
		2.4	9.2	2.7	8.9				10:49
S	14	4:50	10:54	17:20	23:20	Tu	14	5:42	11:48
		2.9	8.7	3.1	8.6				16:15
S	15	5:46	11:50	18:15		W	15	6:21	12:50
		3.3	8.4	3.4					16:50
A	M	6:40	12:47	19:16		N	Th	16	1:25
		8.4	3.4	8.4	3.3				7:54
Tu	17	1:15	7:45	13:42	20:10	F	17	2:24	8:49
		8.4	3.2	8.5	3.1				14:50
W	18	2:10	8:35	14:35	21:00	S	18	3:16	9:40
		8.7	2.8	8.9	2.6				15:40
Th	19	3:00	9:22	15:24	21:44	S	19	4:04	10:22
		9.2	2.4	9.4	2.1				16:25
N	F	3:45	10:04	16:06	22:24	M	20	4:47	11:04
		9.7	1.8	10.0	1.6				17:08
S	21	4:28	10:48	16:47	23:05	Tu	21	5:30	11:45
		10.2	1.3	10.5	1.2				17:50
S	22	5:10	11:24	17:28	23:45	W	22	6:04	12:24
		10.7	1.0	10.9	0.9				18:31
M	23	5:46	12:05	18:10		E	Th	23	6:45
		11.0	0.8	11.1					13:06
Tu	24	6:25	12:47	18:51		F	24	7:30	13:50
		0.8	11.1	0.7	11.1				19:58
W	25	1:06	7:11	13:27	19:34	S	25	8:12	14:35
		0.6	11.1	0.8	11.0				20:48
Th	26	1:50	7:56	14:10	20:18	S	26	8:00	9:10
		0.9	10.9	1.1	10.7				15:25
E	F	2:35	8:42	15:00	21:08	M	27	8:55	10:06
		1.3	10.5	1.5	10.3				16:26
D	S	3:25	9:34	15:50	22:00	Tu	28	9:00	11:13
		1.6	10.1	1.9	9.9				17:38
S	29	4:20	10:30	16:50		W	29	6:17	12:30
		2.1	9.7	2.3	9.5				18:55
M	30	5:23	11:36	18:00		Th	30	1:05	7:36
		2.4	9.4	2.5					13:44
Tu	31	6:10	12:45	19:10		F	31	2:20	8:43
		9.3	2.5	9.8	2.4				14:50

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The time used is Queenstown Mean Local Civil, for the meridian 10° 18' W., 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

OCTOBER.					NOVEMBER.					DECEMBER.							
Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.				Moon.	Day of— W. Mo.	Time and Height of High and Low Water.			
E	M 1	3:54 10.5	10:11 0.9	16:15 10.8	22:32 0.7	C	Th 1	4:45 10.9	11:00 0.7	17:03 10.9	23:18 0.7	A	S 1	4:52 10.5	11:08 1.2	17:08 10.5	23:25 1.2
	Tu 2	4:35 11.0	10:52 0.5	16:55 11.1	23:09 0.4		F 2	5:18 10.9	11:34 0.8	17:36 10.9	23:50 0.9		S 2	5:25 10.6	11:40 1.2	17:40 10.5	23:55 1.3
	W 3	5:14 11.2	11:26 0.4	17:30 11.3	23:44 0.4		S 3	5:50 10.8	12:04 1.0	18:04 10.7			N M 3	5:56 10.5	12:10 1.4	18:12 10.4	
	Th 4	5:45 11.2	12:00 0.5	18:00 11.1			A S 4	0:20 1.2	6:20 10.6	12:35 1.4	18:36 10.4		Tu 4	0:30 1.5	6:30 10.3	12:45 1.6	18:48 10.2
	F 5	0:15 0.7	6:18 11.0	12:30 0.9	18:34 10.8		M 5	0:50 1.6	6:50 10.2	13:05 1.8	19:08 10.0		W 5	1:00 1.7	7:05 10.1	13:20 1.9	19:24 9.9
A	S 6	0:47 1.1	6:50 10.6	13:05 1.8	19:05 10.4	C	Tu 6	1:22 2.0	7:25 9.8	13:38 2.2	19:42 9.6	E	Th 6	1:37 2.0	7:45 9.8	13:56 2.2	20:05 9.6
	S 7	1:18 1.6	7:20 10.2	13:32 1.9	19:35 9.9		W 7	1:55 2.5	8:04 9.3	14:14 2.7	20:24 9.1		F 7	2:18 2.4	8:26 9.4	14:42 2.5	20:56 9.2
	M 8	1:48 2.2	7:54 9.6	14:05 2.5	20:10 9.3		Th 8	2:36 2.9	8:45 8.9	15:00 8.1	21:14 8.7		S 8	3:06 2.7	9:18 9.1	15:35 2.8	21:46 9.0
	Tu 9	2:22 2.7	8:29 9.1	14:44 3.0	20:50 8.8		C F 9	3:27 3.3	9:40 8.5	15:58 8.4	22:12 8.4		C S 9	4:05 2.9	10:18 8.9	16:40 3.0	22:50 8.9
	W 10	3:04 3.2	9:14 8.6	15:28 8.4	21:40 8.4		S 10	4:35 3.5	10:46 8.4	17:12 8.5	23:25 8.4		E M 10	5:12 3.0	11:25 8.9	17:50 2.9	
N	Th 11	3:55 3.6	10:10 8.2	16:30 8.8	22:45 8.1	E	S 11	5:52 3.4	12:02 8.6	18:30 3.2		P	Tu 11	0:00 9.0	6:25 2.7	12:32 9.2	18:57 2.5
	F 12	5:10 3.8	11:22 8.1	17:50 8.8			M 12	0:40 8.8	7:05 2.8	13:12 9.2	19:35 2.4		W 12	1:05 9.5	7:30 2.2	13:37 9.8	20:00 1.8
	S 13	0:02 8.1	6:32 3.6	12:40 8.3	19:10 3.3		E Tu 13	1:42 9.6	8:06 2.0	14:12 10.0	20:34 1.5		Th 13	2:07 10.1	8:29 1.4	14:36 10.5	20:57 1.1
	S 14	1:16 8.7	7:42 2.9	13:48 9.1	20:13 2.4		W 14	2:38 10.5	8:58 1.0	15:08 10.9	21:24 0.6		F 14	3:04 10.8	9:24 0.7	15:30 11.2	21:50 0.4
	M 15	2:16 9.6	8:40 1.9	14:45 10.0	21:05 1.4		Th 15	3:30 11.8	9:47 0.2	15:54 11.7	22:12 -0.1		P S 15	3:56 11.5	10:14 0.1	16:20 11.8	22:40 -0.2
E	Tu 16	3:08 10.6	9:29 0.9	15:32 11.0	21:52 0.5	P	● F 16	4:16 12.0	10:35 -0.4	16:40 12.2	22:55 -0.5	S	S 16	4:45 12.0	11:05 -0.3	17:08 12.1	23:26 -0.4
	W 17	3:57 11.5	10:13 0.1	16:18 11.8	22:35 -0.3		P S 17	5:08 12.4	11:18 -0.6	17:25 12.5	23:40 -0.7		M 17	5:34 12.2	11:50 -0.4	17:56 12.2	
	Th 18	4:40 12.2	10:57 -0.5	17:02 12.4	23:18 -0.7		S 18	5:48 12.5	12:04 -0.6	18:10 12.4			Tu 18	0:14 -0.3	6:20 12.1	12:37 -0.2	18:45 11.9
	P F 19	5:24 12.5	11:40 -0.8	17:44 12.6			S M 19	0:28 -0.5	6:35 12.2	12:50 -0.3	18:56 11.9		W 19	1:00 0.0	7:08 11.7	13:25 0.2	19:32 11.4
	S 20	0:00 -0.7	6:06 12.6	12:26 -0.7	18:30 12.4		Tu 20	1:15 0.0	7:22 11.6	13:40 0.4	19:47 11.3		Th 20	1:50 0.5	7:56 11.1	14:16 0.9	20:24 10.7
S	S 21	0:45 -0.5	6:52 12.2	13:06 -0.2	19:14 11.9	D	W 21	2:05 0.7	8:12 10.9	14:32 1.1	20:40 10.5	D	F 21	2:40 1.2	8:50 10.4	15:10 1.6	21:25 10.0
	M 22	1:30 0.1	7:40 11.6	13:55 0.5	20:04 11.2		Th 22	3:00 1.5	9:09 1.0	15:31 1.9	21:40 9.7		S 22	3:38 1.9	9:46 9.7	16:08 2.2	22:15 9.4
	Tu 23	2:18 0.9	8:28 10.7	14:46 1.3	20:58 10.3		D F 23	4:05 2.2	10:14 9.3	16:40 2.5	22:50 9.1		E S 23	4:40 2.5	10:45 9.1	17:10 2.7	23:18 8.9
	W 24	3:16 1.7	9:28 9.9	15:50 2.1	22:00 9.5		S 24	5:17 2.7	11:25 8.9	17:54 2.8			M 24	5:45 2.9	11:50 8.8	18:18 3.0	
	Th 25	4:25 2.5	10:35 9.1	17:05 2.7	23:14 8.9		S 25	0:02 8.8	6:32 2.8	12:40 8.9	19:05 2.7		Tu 25	0:22 8.7	6:50 3.0	12:55 8.7	19:22 2.9
D	F 26	5:45 2.9	11:55 8.8	18:24 2.8		E	M 26	1:12 9.0	7:38 2.5	13:44 9.1	20:06 2.3	A	W 26	1:27 8.7	7:52 2.8	13:54 8.8	20:18 2.7
	S 27	0:35 8.8	7:05 2.7	13:15 8.9	19:40 2.5		Tu 27	2:10 9.3	8:32 2.2	14:36 9.5	20:56 2.0		Th 27	2:20 9.0	8:45 2.6	14:45 9.1	21:08 2.4
	S 28	1:47 9.2	8:10 2.2	14:15 9.4	20:40 2.0		W 28	3:00 9.7	9:20 1.8	15:20 9.8	21:40 1.6		A F 28	3:08 9.3	9:30 2.2	15:30 9.5	21:48 2.0
	E M 29	2:42 9.7	9:04 1.7	15:08 10.0	21:28 1.4		Th 29	3:40 10.0	10:00 1.5	16:00 10.2	22:18 1.3		S 29	3:50 9.7	10:08 1.9	16:10 9.8	22:27 1.7
	Tu 30	3:29 10.2	9:48 1.2	15:50 10.4	22:09 1.0		C F 30	4:17 10.3	10:36 1.3	16:36 10.4	22:50 1.2		C S 30	4:26 10.0	10:44 1.6	16:44 10.2	23:02 1.4
	W 31	4:10 10.6	10:26 0.8	16:28 10.8	22:44 0.8							N M 31	5:00 10.3	11:18 1.4	17:20 10.4	23:55 1.3	

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is the datum of soundings on the Admiralty Charts for this region, and which is 5.8 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus sign is before the height, in which case subtract it.

The time used is Queenstown Mean Local Civil, for the meridian 8° 18' W.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N. S., moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JANUARY.				FEBRUARY.				MARCH.									
Mo.	Day of— W. Mo.	Time and Height of High and Low Water.				Mo.	Day of— W. Mo.	Time and Height of High and Low Water.									
N	M 1	5:12	11:26	17:42	23:49	D	Th 1	0:00	6:04	12:27	18:24	A	T	12:7	0:8	12:2	1:1
	Tu 2	6:00	12:15	18:30	24:18		F 2	0:45	6:46	13:10	19:07		F 2	5:19	11:45	17:33	
	W 3	6:59	13:04	19:19	24:47		S 3	1:34	7:27	13:52	19:58		S 3	6:08	12:34	18:22	18:12
A	Th 4	7:40	13:45	20:10	25:16	S	Th 4	2:27	8:11	14:35	20:55	N	Th 4	6:47	13:12	19:06	18:56
	F 5	8:22	14:26	20:56	25:45		M 5	3:23	8:52	15:18	21:35		M 5	7:20	14:05	19:50	19:40
	S 6	9:05	15:07	21:37	26:14		Tu 6	4:18	9:43	16:03	22:15		Tu 6	8:08	14:54	20:39	20:29
N	S 7	9:48	15:48	22:18	26:43	O	W 7	5:15	10:34	16:48	22:55	O	W 7	8:41	15:43	21:28	21:18
	M 8	10:31	16:29	23:00	27:12		Th 8	6:10	11:25	17:33	23:35		Th 8	9:20	16:32	22:17	22:07
	Tu 9	11:14	17:10	23:41	27:41		F 9	7:05	12:16	18:24	24:15		F 9	10:00	17:21	23:06	22:56
C	W 10	12:00	17:51	24:22	28:10	E	S 10	8:00	13:07	19:15	24:55	E	S 10	10:40	18:10	23:55	23:45
	Th 11	12:45	18:32	25:03	28:39		S 11	8:55	13:58	20:06	25:35		S 11	11:20	19:00	24:44	24:34
	F 12	1:30	19:13	25:44	29:08		M 12	9:50	14:49	20:57	26:15		M 12	12:00	19:50	25:33	25:23
C	S 13	2:15	19:54	26:25	29:37	C	Tu 13	10:45	15:40	21:48	26:55	C	Tu 13	12:40	20:40	26:22	26:12
	S 14	3:00	20:35	27:06	30:06		W 14	11:40	16:31	22:39	27:35		W 14	1:20	21:30	27:11	27:01
	M 15	3:45	21:16	27:47	30:35		Th 15	12:35	17:22	23:30	28:15		Th 15	2:00	22:20	27:50	27:40
F	Tu 16	4:30	21:57	28:28	31:04	S	F 16	1:30	18:13	24:21	28:55	S	F 16	2:40	23:10	28:39	28:29
	W 17	5:15	22:38	29:09	31:33		S 17	2:25	19:04	25:12	29:35		S 17	3:20	24:00	29:28	29:18
	Th 18	6:00	23:19	29:50	32:02		S 18	3:20	19:55	26:03	30:15		S 18	4:00	24:50	30:17	30:07
P	F 19	6:45	24:00	30:31	32:31	S	M 19	4:15	20:46	26:54	30:55	S	M 19	4:40	25:40	31:06	30:56
	S 20	7:30	24:41	31:12	33:00		Tu 20	5:10	21:37	27:45	31:35		Tu 20	5:20	26:30	31:57	31:47
	S 21	8:15	25:22	31:53	33:29		W 21	6:05	22:28	28:36	32:15		W 21	6:00	27:20	32:08	31:98
S	M 22	9:00	26:03	32:34	33:58	●	Th 22	7:00	23:19	29:27	32:55	●	Th 22	6:40	28:10	33:00	32:50
	Tu 23	9:45	26:44	33:15	34:27		F 23	7:55	24:10	30:18	33:35		F 23	7:20	29:00	33:51	33:41
	W 24	10:30	27:25	33:56	34:56		S 24	8:50	25:01	31:09	34:15		S 24	8:00	30:00	34:02	33:52
E	Th 25	11:15	28:06	34:37	35:25	E	S 25	9:45	25:52	32:00	34:55	E	S 25	8:40	31:00	34:53	34:43
	F 26	12:00	28:47	35:18	35:54		M 26	10:40	26:43	32:51	35:35		M 26	9:20	32:00	35:44	35:34
	S 27	12:45	29:28	35:59	36:23		Tu 27	11:35	27:34	33:42	36:15		Tu 27	10:00	33:00	36:35	36:25
E	S 28	1:30	30:09	36:40	36:52	A	W 28	12:30	28:25	34:33	36:55	A	W 28	10:40	34:00	37:06	36:56
	M 29	2:15	30:50	37:21	37:21								Th 29	11:20	35:00	37:57	37:47
	Tu 30	3:00	31:31	38:02	37:50								F 30	12:00	36:00	38:48	38:38
W	W 31	3:45	32:12	38:43	38:19								S 31	12:40	37:00	39:39	39:29

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the German Charts for this region, and which is 6.9 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Central European, for the meridian 15° E. 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon, all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ☽, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

APRIL.					MAY.					JUNE.				
Mon.	Day of— W. Mo.	Time and Height of High and Low Water.			Mon.	Day of— W. Mo.	Time and Height of High and Low Water.			Mon.	Day of— W. Mo.	Time and Height of High and Low Water.		
N	S 1	5:14	11:45	17:32	D	Tu 1	5:23	11:57	17:46	E	F 1	1:05	6:50	13:20
		11.8	2.0	11.9			11.7	2.5	11.9			1.9	11.0	2.9
D	M 2	0:11	5:53	12:30	W 2	0:32	6:13	12:50	18:38	E	S 2	2:03	7:56	14:26
		2.2	11.4	2.6			2.2	11.2	3.0			2.1	10.7	3.0
	Tu 3	1:01	6:42	13:24	Th 3	1:30	7:15	13:54	19:41		S 3	3:08	9:06	15:31
		2.6	11.1	3.2			2.4	10.7	3.3			2.0	10.7	2.7
	W 4	2:00	7:43	14:30	F 4	2:35	8:29	15:03	20:55		M 4	4:07	10:12	16:33
		2.9	10.4	3.4			2.4	10.4	3.2			1.7	11.0	2.2
	Th 5	3:07	9:02	15:37	S 5	3:39	9:43	16:05	22:07		Tu 5	5:03	11:15	17:30
		2.8	10.2	3.2			2.1	10.6	2.7			1.3	11.5	1.5
	F 6	4:10	10:15	16:38	E S 6	4:37	10:48	17:03	23:09	P	W 6	5:59	12:10	18:25
		2.3	10.5	2.6			1.6	11.2	2.0	O		0.9	12.1	0.9
	S 7	5:08	11:18	17:34	M 7	5:31	11:43	17:55			Th 7	0:35	6:51	13:01
		1.6	11.2	1.8			0.9	11.9	1.1			12.5	0.6	12.7
E	S 8	6:01	12:12	18:25	C	Tu 8	0:04	6:20	12:35	S	F 8	1:28	7:38	13:51
		0.8	12.1	1.0	P		12.7	0.3	12.6			12.8	0.3	13.1
O	M 9	0:32	6:52	13:00	W 9	0:55	7:18	13:20	19:37		S 9	2:20	8:31	14:40
		13.0	0.0	12.8			13.2	-0.1	13.2			12.8	0.3	13.3
P	Tu 10	1:18	7:38	13:43	Th 10	1:45	8:00	14:08	20:25		S 10	3:10	9:21	15:30
		13.7	-0.6	13.4			13.5	-0.3	13.4			12.6	0.6	13.2
	W 11	2:04	8:24	14:26	F 11	2:33	8:49	14:53	21:15		M 11	4:01	10:10	16:20
		14.0	-0.8	13.6			13.4	-0.1	13.4			12.2	0.9	12.9
	Th 12	2:48	9:10	15:10	S 12	3:20	9:37	15:42	22:04		Tu 12	4:55	11:02	17:12
		14.0	-0.6	13.6			13.1	0.3	13.1			11.6	1.4	12.5
	F 13	3:34	9:55	15:53	S 13	4:12	10:25	16:30	22:58	C	W 13	5:50	11:55	18:10
		13.6	0.0	13.2			12.5	1.0	12.6			11.1	1.9	12.0
S	S 14	4:22	10:44	16:40	M 14	5:05	11:20	17:25	23:50		Th 14	0:22	6:50	12:50
		12.8	0.9	12.5			11.7	1.8	12.0			1.7	10.6	2.4
C	S 15	5:14	11:37	17:33	C	Tu 15	6:05	12:17	18:27	E	F 15	1:20	7:50	13:47
		11.9	1.8	11.6			10.8	2.5	11.4			2.2	10.3	2.7
	M 16	0:08	6:13	12:36	W 16	0:45	7:15	13:17	19:33		S 16	2:19	8:50	14:45
		1.6	10.9	2.8			2.1	10.2	3.0			2.5	10.2	2.9
	Tu 17	1:12	7:27	13:41	Th 17	1:49	8:27	14:20	20:45		S 17	3:11	9:46	15:35
		2.4	10.0	3.4			2.6	9.9	3.2			2.6	10.3	2.9
	W 18	2:12	8:52	14:48	F 18	2:54	9:37	15:18	21:51	A	M 18	4:04	10:37	16:25
		3.0	9.6	3.6			2.8	10.0	3.3			2.6	10.6	2.8
	Th 19	3:22	10:10	15:55	E S 19	3:50	10:35	16:15	22:59		Tu 19	4:52	11:23	17:17
		8.1	9.7	3.5			2.8	10.3	3.0			2.3	11.0	2.4
	F 20	4:27	11:13	16:52	S 20	4:45	11:24	17:08	23:38		W 20	5:35	12:03	17:58
		2.9	10.2	3.1			2.5	10.8	2.5			2.0	11.4	2.0
E	S 21	5:23	12:02	17:43	M 21	5:30	12:05	17:54			Th 21	0:22	6:20	12:40
		2.4	10.9	2.4			2.1	11.4	2.0			11.4	1.5	11.9
	S 22	0:13	6:10	12:42	A	Tu 22	0:20	6:15	12:42	N	F 22	1:00	7:07	13:17
		11.8	1.8	11.6			11.8	1.5	11.9			11.6	1.1	12.4
●	M 23	0:55	6:48	13:17	●	W 23	0:58	6:51	13:17		S 23	1:33	7:47	13:55
		12.3	1.3	12.2			12.0	1.1	12.3			12.0	0.8	12.8
	Tu 24	1:32	7:29	13:50	Th 24	1:32	7:37	13:47	19:55		S 24	2:09	8:27	14:30
		12.7	0.7	12.7			12.2	0.7	12.7			12.2	0.7	13.0
A	W 25	2:07	8:07	14:22	F 25	2:04	8:15	14:20	20:37		M 25	2:45	9:05	15:05
		12.8	0.4	12.9			12.3	0.5	12.9			12.4	0.7	13.1
	Th 26	3:36	8:45	14:50	N	S 26	2:37	8:51	14:53		Tu 26	3:23	9:45	15:43
		12.8	0.3	13.0			12.3	0.6	13.0			12.4	0.9	13.1
	F 27	3:06	9:21	15:22	S 27	3:09	9:29	15:25	21:55		W 27	4:02	10:27	16:22
		12.7	0.4	13.0			12.1	0.8	13.0			12.4	1.3	13.0
	S 28	3:37	9:56	15:53	M 28	3:43	10:07	16:00	22:35		Th 28	4:44	11:11	17:07
		12.5	0.8	12.8			12.3	1.2	12.9			12.2	1.7	12.7
N	S 29	4:09	10:32	16:25	Tu 29	4:20	10:48	16:41	23:20	D	F 29	5:31	12:00	17:55
		12.3	1.3	12.6			12.1	1.7	12.6	E		11.8	2.1	12.4
	M 30	4:43	11:11	17:01	W 30	5:05	11:32	17:25			S 30	0:39	6:25	12:52
		12.0	1.9	12.3			11.8	2.2	12.2			1.5	11.4	2.5
					D	Th 31	0:08	5:52	12:24					
							1.7	11.5	2.6					

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the German Charts for this region, and which is 6.9 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (—) sign is before the height, in which case subtract it.

The time used is Central European, for the meridian 15° E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; D, 1st quar.; O, full moon; C, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

JULY.					AUGUST.					SEPTEMBER.										
Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.		Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.				W.	Mo.				W.	Mo.								
P	S	1	1:33 1.7	7:29 10.9	13:53 2.6	19:53 11.8	P	W	1	3:05 2.7	9:14 10.3	15:36 2.8	21:53 10.5	S	1	4:55 3.2	11:30 11.0	17:30 2.5	23:30 1.8	
	M	2	2:30 2.0	8:32 10.7	14:55 2.6	21:02 11.2	S	Th	2	4:00 2.8	10:30 10.6	16:33 2.5	23:10 10.6	S	2	0:12 10.7	6:55 2.5	12:28 11.8	18:27 1.8	
	Tu	3	3:32 2.1	9:40 10.7	16:00 2.4	22:12 11.2	F	3	5:05 2.5	11:38 11.2	17:40 2.0	23:10 10.6	○	M	3	1:04 11.4	6:48 1.7	13:18 12.6	19:17 1.1	
E	W	4	4:25 2.0	10:50 11.1	17:54 1.9	23:19 11.4	○	S	4	0:15 11.1	6:07 2.1	12:37 12.0	18:40 1.4	E	Tu	4	1:48 12.0	7:35 1.0	14:00 13.2	20:02 0.6
	Th	5	5:20 1.7	11:50 11.6	17:55 1.4	23:19 11.4	S	5	1:12 11.6	7:01 1.5	13:30 12.7	19:33 0.9	E	W	5	2:27 12.5	8:18 0.4	14:44 13.6	20:43 0.2	
	F	6	0:21 11.7	6:20 1.3	12:48 12.3	18:50 0.9	M	6	2:01 12.0	7:48 0.9	14:18 13.3	20:21 0.5	E	Th	6	3:05 12.8	9:00 0.1	15:21 13.6	21:24 0.1	
N	S	7	1:18 12.1	7:12 1.0	13:40 12.9	19:41 0.5	Tu	7	2:46 12.3	8:39 0.5	15:08 13.5	21:07 0.2	E	F	7	3:40 12.8	9:40 0.1	16:00 13.8	22:00 0.8	
	S	8	2:10 12.8	8:08 0.7	14:30 13.3	20:36 0.3	W	8	3:30 12.5	9:25 0.3	15:47 13.5	21:50 0.3	E	S	8	4:16 12.6	10:23 0.4	16:36 12.8	22:40 0.7	
	M	9	3:00 12.3	8:51 0.6	15:19 13.4	21:25 0.2	E	Th	9	4:10 12.4	10:06 0.4	16:30 13.3	22:32 0.5	E	S	9	4:52 12.2	11:05 0.9	17:14 12.1	23:27 1.4
C	Tu	10	3:49 12.2	9:47 0.7	16:05 13.3	22:13 0.4	F	10	4:52 12.1	10:56 0.7	17:11 12.7	23:18 0.9	A	M	10	5:30 11.7	11:50 1.6	17:52 11.4	24:02 1.1	
	W	11	4:35 11.9	10:30 0.9	16:54 13.0	23:01 0.8	S	11	5:38 11.7	11:40 1.8	17:55 12.1	23:56 1.5	A	Tu	11	0:10 2.0	6:10 11.2	12:35 2.3	18:35 10.8	
	Th	12	5:22 11.6	11:23 1.3	17:43 12.5	23:51 1.3	○	S	12	6:15 11.3	12:25 1.9	18:40 11.4	24:18 1.5	N	W	12	1:00 2.6	6:56 10.7	13:25 2.8	19:24 10.2
A	F	13	6:12 11.2	12:14 1.8	18:34 11.9	24:41 1.3	A	M	13	0:48 2.1	7:00 10.8	13:16 2.5	19:26 10.7	N	Th	13	1:50 3.1	7:50 10.3	14:19 3.0	20:22 9.9
	S	14	0:37 1.8	7:03 10.8	12:58 2.2	19:25 11.8	Tu	14	1:40 2.6	7:50 10.4	14:00 2.8	20:16 10.2	N	F	14	2:47 3.2	8:54 10.2	15:18 2.9	21:27 10.0	
	S	15	1:30 2.3	7:55 10.5	13:49 2.6	20:19 10.8	W	15	2:28 2.9	8:46 10.2	15:00 3.1	21:15 10.0	N	S	15	3:45 3.1	9:58 10.5	16:08 2.6	22:32 10.4	
E	M	16	2:17 2.6	8:48 10.3	14:40 2.9	21:12 10.5	N	Th	16	3:20 3.0	9:44 10.3	15:45 3.0	22:11 10.1	N	S	16	4:35 2.6	10:57 11.1	17:05 1.9	23:27 11.1
	Tu	17	3:10 2.7	9:41 10.4	15:34 3.0	22:05 10.4	F	17	4:15 2.8	10:40 10.7	16:40 2.6	23:05 10.5	N	M	17	5:34 1.9	11:50 11.9	17:54 1.1	24:18 1.1	
	W	18	4:00 2.7	10:32 10.6	16:28 2.8	22:55 10.6	S	18	5:12 2.3	11:30 11.3	17:30 2.0	23:57 11.1	●	Tu	18	0:17 11.9	6:22 1.1	12:36 12.8	18:44 0.2	
N	Th	19	4:49 2.4	11:21 11.0	17:16 2.4	23:42 10.9	S	19	6:00 1.7	12:20 12.0	18:20 1.2	24:50 1.2	E	W	19	1:08 12.7	7:10 0.8	13:20 13.6	19:39 -0.5	
	F	20	5:37 1.9	12:05 11.6	18:01 1.8	24:31 1.2	●	M	20	0:42 11.8	6:50 1.0	13:04 12.7	19:10 0.5	E	Th	20	1:44 13.8	7:55 -0.3	14:00 14.1	20:19 -0.9
	S	21	0:25 11.3	6:21 1.4	12:48 12.1	18:48 1.2	Tu	21	1:25 12.5	7:35 0.5	13:45 13.4	19:55 -0.2	E	F	21	2:24 13.7	8:38 -0.6	14:45 14.2	21:02 -0.9	
E	S	22	1:07 11.8	7:12 0.9	13:27 12.7	19:32 0.6	W	22	2:06 13.0	8:18 0.0	14:25 13.8	20:40 -0.6	P	S	22	3:05 13.7	9:22 -0.5	15:25 14.0	21:45 -0.5	
	M	23	1:46 12.3	7:58 0.6	14:07 13.1	20:18 0.2	E	Th	23	2:46 13.3	9:00 -0.1	15:05 14.0	21:26 -0.6	P	S	23	3:45 13.4	10:06 -0.1	16:10 13.5	22:33 0.3
	Tu	24	2:27 12.6	8:40 0.4	14:46 13.4	21:05 -0.1	F	24	3:26 13.3	9:44 0.0	15:48 13.8	22:10 -0.3	P	M	24	4:29 12.8	10:55 0.6	16:58 12.6	23:20 1.3	
N	W	25	3:07 12.8	9:23 0.4	15:26 13.5	21:50 -0.1	S	25	4:08 13.1	10:28 0.3	16:30 13.4	22:57 0.3	P	Tu	25	5:15 11.9	11:48 1.4	17:50 11.6	24:02 1.1	
	Th	26	3:48 12.8	10:05 0.6	16:08 13.4	22:35 0.1	S	26	4:50 12.6	11:15 0.9	17:17 12.8	23:45 1.2	P	W	26	0:15 2.3	6:10 11.0	12:48 2.3	18:54 10.5	
	F	27	4:30 12.6	10:50 0.9	16:50 13.1	23:21 0.5	○	M	27	5:38 11.8	12:05 1.7	18:07 11.9	24:37 1.2	P	Th	27	1:18 3.3	7:20 10.8	13:48 2.8	20:16 9.7
E	S	28	5:14 12.2	11:38 1.4	17:37 12.6	24:07 1.2	Tu	28	0:39 2.1	6:30 11.0	13:04 2.4	19:09 10.9	P	F	28	2:20 3.7	8:45 10.0	15:00 3.2	21:45 9.5	
	S	29	0:11 1.1	6:03 11.7	12:29 2.0	18:28 11.9	S	W	29	1:37 2.8	7:35 10.3	14:10 2.8	20:22 10.1	P	S	29	3:28 3.8	10:10 10.3	16:10 3.1	23:04 10.0
	M	30	1:05 1.8	6:59 11.0	13:25 2.4	19:28 11.2	Th	30	2:39 3.3	8:58 10.0	15:10 3.0	21:48 9.8	P	S	30	4:38 3.4	11:18 11.0	17:16 2.6	24:02 1.1	
N	Tu	31	2:04 2.3	8:00 10.5	14:29 2.7	20:37 10.7	F	31	3:45 3.4	10:18 10.3	16:24 2.9	23:08 10.1	P							

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day; a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the German Charts for this region, and which is 6.9 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Central European, for the meridian 15° E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st. quar.; ○, full moon; ☾, 3d. quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.



OCTOBER.										NOVEMBER.										DECEMBER.												
Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.								Moon.	Day of—		Time and Height of High and Low Water.							
	W.	Mo.										W.	Mo.										W.	Mo.								
E	M	1	0:02 10.9	5:40 2.4	12:14 12.0	18:10 1.7	A	Th	1	0:55 12.2	6:45 1.1	13:10 12.7	19:05 0.7	N	S	1	1:00 12.4	6:55 1.1	13:18 12.2	19:12 0.5												
	Tu	2	0:45 14.7	6:29 1.6	12:58 12.7	18:55 1.0		F	2	1:30 12.7	7:25 0.6	13:47 12.9	19:41 0.4		S	2	1:35 12.8	7:34 0.7	13:50 12.3	19:51 0.5												
	W	3	1:24 12.3	7:10 0.8	13:38 13.2	19:34 0.4		S	3	2:08 13.0	8:00 0.3	14:20 12.9	20:15 0.3		M	3	2:05 13.0	8:10 0.5	14:22 12.3	20:30 0.5												
	Th	4	2:00 12.8	7:50 0.3	14:15 13.6	20:12 0.1		S	4	2:35 13.1	8:38 0.2	14:52 12.7	20:59 0.4		Tu	4	2:40 13.0	8:50 0.4	14:55 12.3	21:10 0.7												
	F	5	2:32 13.1	8:27 0.0	14:50 13.4	20:48 0.1		M	5	3:06 13.0	9:21 0.3	15:24 12.4	21:36 0.7		W	5	3:15 13.0	9:35 0.6	15:30 12.2	21:48 1.0												
A	S	6	3:05 13.1	9:07 0.0	15:23 13.1	21:28 0.3	N	Tu	6	3:40 12.8	10:00 0.7	15:57 12.1	22:15 1.2	Th	6	3:50 12.8	10:15 0.9	16:08 12.0	22:30 1.5													
	S	7	3:38 12.9	9:50 0.3	15:56 12.6	22:08 0.7	W	7	4:15 12.4	10:40 1.2	16:32 11.7	22:58 1.9	F	7	4:25 12.5	11:00 1.2	16:50 11.6	23:14 2.0														
	M	8	4:10 12.5	10:30 0.9	16:30 12.0	22:46 1.4	Th	8	4:50 12.0	11:25 1.8	17:14 11.2	23:42 2.5	S	8	5:08 12.1	11:48 1.6	17:34 11.3	23:59 2.5														
	Tu	9	4:48 12.0	11:11 1.5	17:08 11.4	23:30 2.1	F	9	5:35 11.5	12:16 2.2	18:02 10.8	24:42 3.0	S	9	0:02 2.5	5:56 11.7	12:40 1.9	18:30 10.9														
	W	10	5:25 11.5	11:57 2.2	17:50 10.9	24:18 2.5	S	10	0:35 8.0	6:30 11.0	13:11 2.5	19:02 10.4	M	10	0:56 2.9	6:50 11.3	13:35 2.1	19:30 10.7														
N	Th	11	0:17 2.8	6:10 11.0	12:50 2.7	18:38 10.4	S	11	1:34 8.3	7:28 10.7	14:10 2.5	20:10 10.3	Tu	11	1:57 2.9	7:55 11.1	14:35 2.0	20:35 10.6														
	F	12	1:10 3.2	7:05 10.5	13:45 2.9	19:40 10.0	M	12	2:35 3.2	8:37 10.8	15:09 2.2	21:20 10.5	W	12	3:00 2.7	9:00 11.2	15:35 1.9	21:42 10.9														
	S	13	2:10 3.4	8:10 10.3	14:45 2.8	20:52 10.0	Tu	13	3:36 2.8	9:41 11.2	16:08 1.6	22:22 11.1	Th	13	4:00 2.3	10:06 11.5	16:28 1.5	22:44 11.4														
	S	14	3:12 3.2	9:20 10.6	15:43 2.4	22:00 10.4	W	14	4:34 2.0	10:42 11.9	16:55 1.0	23:18 11.9	F	14	4:56 1.7	11:10 12.0	17:20 1.0	23:40 12.0														
	M	15	4:10 2.7	10:22 11.2	16:35 1.7	22:58 11.2	Th	15	5:25 1.3	11:38 12.6	17:46 0.3	24:22 1.8	S	15	5:50 1.0	12:06 12.4	18:14 0.6	24:58 1.8														
E	Tu	16	5:00 1.9	11:18 12.0	17:25 0.8	23:48 12.0	F	16	0:08 12.6	6:15 0.5	12:28 13.2	18:38 -0.1	S	16	0:35 12.7	6:40 0.4	13:00 12.8	19:08 0.3														
	W	17	5:50 1.0	12:07 12.9	18:18 0.0	24:40 1.0	S	17	0:55 18.2	7:05 -0.1	13:15 13.5	19:30 -0.4	M	17	1:25 13.2	7:34 0.0	13:51 12.9	19:55 0.2														
	Th	18	0:34 12.8	6:42 0.2	12:52 13.6	19:04 -0.6	S	18	1:40 13.6	7:54 -0.5	14:05 13.5	20:18 -0.4	Tu	18	2:14 13.5	8:22 -0.2	14:42 12.8	20:45 0.2														
	F	19	1:18 13.4	7:29 -0.3	13:35 14.0	19:50 -0.9	M	19	2:25 13.6	8:44 -0.5	14:50 13.3	21:04 0.1	W	19	3:04 13.5	9:15 -0.2	15:32 12.5	21:40 0.6														
	S	20	2:00 13.8	8:13 -0.6	14:20 14.0	20:38 -0.7	Tu	20	3:12 13.4	9:30 -0.2	15:40 12.8	21:54 0.7	Th	20	3:52 13.3	10:05 0.2	16:24 12.0	22:25 1.0														
S	S	21	2:41 13.7	9:00 -0.5	15:05 13.7	21:23 -0.2	W	21	4:02 13.0	10:25 0.3	16:34 12.0	22:46 1.5	F	21	4:45 12.9	10:58 0.7	17:20 11.5	23:22 1.6														
	M	22	3:25 13.3	9:47 -0.1	15:52 13.1	22:10 0.6	Th	22	4:55 12.3	11:15 1.1	17:34 11.1	23:42 2.3	S	22	5:40 12.3	11:51 1.3	18:17 10.9	24:08 1.0														
	Tu	23	4:12 12.7	10:38 0.6	16:44 12.1	23:02 1.7	F	23	5:55 11.6	12:11 1.8	18:40 10.4	24:58 2.0	S	23	0:18 2.2	6:38 11.7	12:50 2.0	19:20 10.4														
	W	24	5:04 11.9	11:34 1.4	17:42 11.1	24:02 1.0	S	24	0:38 2.8	7:08 11.1	13:15 2.4	19:54 10.0	M	24	1:13 2.6	7:40 11.3	13:45 2.4	20:20 10.2														
	Th	25	0:00 2.6	6:05 11.1	12:30 2.2	18:54 10.2	S	25	1:40 3.3	8:15 10.9	14:22 2.8	21:07 9.9	Tu	25	2:06 2.9	8:42 11.0	14:44 2.7	21:22 10.2														
D	F	26	1:03 3.3	7:18 10.5	13:36 2.8	20:16 9.7	M	26	2:45 3.3	9:25 10.9	15:25 2.8	22:14 10.3	W	26	3:07 3.0	9:42 10.8	15:39 2.8	22:18 10.5														
	S	27	2:00 3.7	8:40 10.4	14:47 3.1	21:40 9.8	Tu	27	3:48 3.2	10:24 11.1	16:20 2.6	23:02 10.8	Th	27	4:02 2.9	10:38 10.8	16:30 2.6	23:06 10.8														
	S	28	3:10 3.7	9:55 10.7	15:56 2.9	22:47 10.2	W	28	4:42 2.7	11:18 11.5	17:10 2.2	23:45 11.3	F	28	4:55 2.7	11:27 11.0	17:17 2.2	23:50 11.3														
	M	29	4:20 3.2	10:57 11.3	16:55 2.5	23:38 11.0	Th	29	5:31 2.2	12:00 11.8	17:54 1.7	24:42 1.2	S	29	5:41 2.2	12:10 11.3	18:00 1.8	24:58 1.3														
	Tu	30	5:16 2.5	11:50 11.9	17:44 1.8	25:30 1.0	F	30	0:25 11.9	6:15 1.6	12:42 12.0	18:34 1.2	S	30	0:30 11.8	6:25 1.7	12:50 11.6	18:42 1.3														
E	W	31	0:20 11.6	6:04 1.8	12:32 12.4	18:26 1.2							N	M	31	1:08 12.3	7:05 1.2	13:25 11.9	19:26 0.9													

The tides are placed in the order of occurrence, with their times on the first line and heights on the second line of each day: a comparison of consecutive heights will indicate whether it is high or low water. The heights, in feet and tenths, are reckoned from Mean Low Water Springs, which is approximately the datum of soundings on the German Charts for this region, and which is 6.9 feet below mean sea level. To find the depth of water, add the tabular height to the soundings given on the chart, unless a minus (-) sign is before the height, in which case subtract it.

The time used is Central European, for the meridian 15° E.; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:47 is 3:47 p. m.

●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator; A, P, moon in apogee or perigee.

TABLE 2.—HEIGHT OF THE TIDE AT ANY TIME.

*For finding the height of the sea or tide at any intermediate hour between High and Low Water.*

Range of Tide.	Subtract from height of High Water.						Add to height of Low Water.						Range of Tide.
	Hours before High Water.			Hours after High Water.			Hours before Low Water.			Hours after Low Water.			
	3	2	1	1	2	3	3	2	1	1	2	3	
Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.

## PORTLAND, MAINE.

6	2.5	1.3	0.2	0.4	1.4	3.0	2.8	1.3	0.4	0.3	1.1	2.8	6
7	3.0	1.5	0.3	0.4	1.5	3.4	3.3	1.5	0.4	0.4	1.3	3.3	7
8	3.5	1.7	0.4	0.4	1.7	3.8	3.8	1.8	0.4	0.5	1.6	3.7	8
9	4.1	1.9	0.5	0.5	1.9	4.2	4.3	2.0	0.5	0.5	1.9	4.2	9
10	4.6	2.1	0.5	0.5	2.0	4.5	4.8	2.3	0.5	0.6	2.2	4.7	10
11	5.1	2.3	0.6	0.6	2.2	4.9	5.3	2.5	0.6	0.7	2.5	5.2	11
12	5.7	2.5	0.7	0.6	2.4	5.3	5.8	2.7	0.6	0.7	2.8	5.7	12
13	6.2	2.7	0.8	0.6	2.5	5.6	6.3	3.0	0.7	0.8	3.1	6.2	13

## BOSTON, MASSACHUSETTS.

6	2.9	1.6	0.4	0.5	1.6	2.8	3.3	1.9	0.6	0.5	1.6	2.7	6
7	3.4	1.9	0.5	0.6	1.9	3.3	3.8	2.2	0.7	0.7	1.9	3.2	7
8	3.9	2.1	0.5	0.7	2.1	3.7	4.3	2.6	0.9	0.8	2.2	3.7	8
9	4.4	2.4	0.6	0.7	2.3	4.1	4.9	2.9	1.0	1.0	2.5	4.2	9
10	4.9	2.6	0.6	0.8	2.6	4.5	5.4	3.3	1.1	1.1	2.8	4.7	10
11	5.3	2.8	0.7	0.9	2.8	4.9	5.9	3.6	1.2	1.3	3.1	5.2	11
12	5.8	3.0	0.7	0.9	3.1	5.3	6.4	3.9	1.4	1.4	3.4	5.7	12
13	6.3	3.3	0.8	1.0	3.3	5.7	6.9	4.3	1.5	1.6	3.7	6.1	13

## NEWPORT, RHODE ISLAND.

2	1.2	0.6	0.2	0.2	0.6	1.3	1.0	0.3	0.0	0.0	0.3	0.7	2
3	1.5	0.8	0.3	0.3	1.0	1.9	1.6	0.7	0.2	0.1	0.5	1.0	3
4	1.8	0.9	0.3	0.4	1.3	2.4	2.3	1.2	0.3	0.3	0.7	1.4	4
5	2.0	1.1	0.4	0.6	1.7	3.0	2.9	1.6	0.5	0.4	0.9	1.7	5

## NEW LONDON, CONNECTICUT.

2	1.0	0.5	0.2	0.2	0.6	0.9	0.9	0.6	0.2	0.2	0.6	1.0	2
3	1.2	0.6	0.2	0.3	0.8	1.3	1.4	0.8	0.3	0.2	0.9	1.6	3
4	1.4	0.8	0.3	0.4	1.0	1.7	1.8	1.0	0.4	0.3	1.1	2.2	4

## WILLETS POINT, NEW YORK.

5	2.9	0.8	0.0	0.0	1.0	2.5	2.0	0.6	0.1	0.1	1.2	3.0	5
6	3.2	1.0	0.1	0.1	1.1	2.8	2.3	0.8	0.2	0.2	1.5	3.5	6
7	3.5	1.1	0.1	0.1	1.2	3.2	2.6	1.0	0.3	0.3	1.8	4.0	7
8	3.8	1.2	0.1	0.2	1.3	3.5	2.8	1.1	0.4	0.3	2.1	4.5	8
9	4.1	1.3	0.2	0.3	1.4	3.9	3.0	1.3	0.5	0.4	2.4	5.0	9

## NEW YORK, NEW YORK.

3	1.4	0.7	0.1	0.3	0.8	1.6	1.6	0.8	0.1	0.1	0.6	1.6	3
4	1.9	0.9	0.2	0.3	1.0	2.0	1.7	0.9	0.2	0.4	1.3	2.5	4
5	2.3	1.0	0.3	0.4	1.1	2.4	1.9	1.0	0.3	0.5	1.9	3.4	5
6	2.7	1.2	0.4	0.5	1.3	2.8	2.0	1.0	0.4	0.8	2.6	4.2	6

## SANDY HOOK, NEW JERSEY.

3	1.2	0.6	0.2	0.4	1.0	1.7	1.3	0.7	0.3	0.3	0.8	1.7	3
4	1.7	0.9	0.2	0.4	1.2	2.1	1.7	0.9	0.3	0.3	1.2	2.2	4
5	2.2	1.1	0.3	0.4	1.4	2.5	2.0	1.1	0.3	0.4	1.5	2.8	5
6	2.7	1.4	0.4	0.5	1.6	3.0	2.3	1.2	0.3	0.5	1.9	3.3	6
7	3.2	1.6	0.4	0.5	1.8	3.3	2.6	1.3	0.3	0.5	2.2	3.7	7

TABLE 2.—HEIGHT OF THE TIDE AT ANY TIME.

*For finding the height of the sea or tide at any intermediate hour between High and Low Water.*

Range of Tide.	Subtract from height of High Water.						Add to height of Low Water.						Range of Tide.
	Hours before High Water.			Hours after High Water.			Hours before Low Water.			Hours after Low Water.			
	8	2	1	1	2	3	8	2	1	1	2	3	
Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
PHILADELPHIA, PENNSYLVANIA.													
5	2.7	1.5	0.5	0.7	1.8	2.8	1.8	1.1	0.5	1.9	3.5	4.3	5
6	2.9	1.5	0.5	0.7	1.9	2.8	2.0	1.2	0.6	2.1	3.8	4.9	6
7	3.1	1.6	0.5	0.7	1.9	2.9	2.2	1.3	0.6	2.3	4.0	5.6	7
OLD POINT COMFORT, VIRGINIA.													
2	0.9	0.4	0.1	0.1	0.5	1.2	1.1	0.5	0.0	0.2	0.6	1.3	2
3	1.2	0.6	0.2	0.2	0.7	1.6	1.4	0.6	0.1	0.2	0.8	1.6	3
WASHINGTON, DISTRICT OF COLUMBIA.													
2	1.2	0.5	0.1	0.1	0.5	1.1	1.0	0.5	0.1	0.1	0.8	1.5	2
3	1.4	0.7	0.2	0.2	0.7	1.3	1.2	0.6	0.2	0.3	1.0	1.8	3
4	1.6	0.9	0.3	0.3	0.9	1.5	1.4	0.7	0.3	0.3	1.2	2.1	4
BALTIMORE, MARYLAND.													
1	0.5	0.3	0.1	0.1	0.3	0.5	0.5	0.3	0.1	0.1	0.3	0.5	1
2	0.7	0.4	0.1	0.1	0.4	0.7	0.8	0.4	0.1	0.1	0.4	0.8	2
WILMINGTON, NORTH CAROLINA.													
1	0.8	0.4	0.1	0.1	0.3	0.6	0.3	0.2	0.1	0.2	0.5	0.9	1
2	1.2	0.6	0.2	0.2	0.6	1.0	0.6	0.3	0.1	0.5	1.0	1.7	2
3	1.6	0.8	0.2	0.3	0.9	1.5	0.9	0.5	0.2	0.8	1.6	2.6	3
4	2.1	1.1	0.3	0.4	1.2	2.0	1.2	0.7	0.3	1.2	2.3	3.5	4
CHARLESTON, SOUTH CAROLINA.													
3	1.4	0.6	0.2	0.2	0.6	1.4	1.6	0.7	0.3	0.2	1.0	1.9	3
4	1.8	0.8	0.2	0.2	0.9	1.8	2.1	1.1	0.3	0.3	1.3	2.3	4
5	2.1	1.0	0.2	0.3	1.2	2.3	2.6	1.4	0.4	0.4	1.5	2.7	5
6	2.4	1.1	0.3	0.4	1.5	2.7	3.1	1.8	0.5	0.5	1.7	3.2	6
7	2.7	1.3	0.4	0.5	1.8	3.2	3.6	2.1	0.6	0.6	1.9	3.6	7
SAVANNAH ENTRANCE, GEORGIA.													
4	2.3	1.2	0.4	0.3	1.4	2.2	2.5	1.5	0.4	0.3	1.0	2.2	4
5	2.5	1.3	0.4	0.4	1.4	2.4	2.7	1.5	0.4	0.4	1.2	2.5	5
6	2.9	1.4	0.4	0.4	1.5	2.9	3.0	1.6	0.5	0.4	1.5	3.0	6
7	3.2	1.6	0.4	0.5	1.7	3.3	3.3	1.7	0.6	0.5	1.9	3.6	7
8	3.6	1.7	0.4	0.5	1.8	3.8	3.6	1.8	0.6	0.6	2.2	4.1	8
9	4.0	1.8	0.5	0.6	1.9	4.2	3.9	2.0	0.7	0.7	2.6	4.6	9
FERNANDINA, FLORIDA.													
4	2.0	1.1	0.3	0.4	1.2	2.1	1.8	0.9	0.2	0.3	1.0	1.9	4
5	2.4	1.3	0.4	0.4	1.4	2.6	2.2	1.2	0.3	0.4	1.3	2.4	5
6	2.8	1.5	0.4	0.5	1.7	3.1	2.6	1.4	0.4	0.5	1.6	3.0	6
7	3.2	1.6	0.5	0.5	2.0	3.6	3.0	1.7	0.5	0.5	1.9	3.5	7
8	3.4	1.7	0.5	0.6	2.2	3.9	3.3	1.9	0.5	0.6	2.1	3.8	8
KEY WEST, FLORIDA.													
1	0.4	0.1	0.1	0.1	0.2	0.5	0.5	0.2	0.1	0.1	0.1	0.4	1
2	0.7	0.2	0.1	0.1	0.4	0.9	0.9	0.3	0.1	0.1	0.2	0.9	2
3	1.0	0.3	0.1	0.2	0.6	1.3	1.2	0.4	0.2	0.2	0.4	1.4	3

TABLE 2.—HEIGHT OF THE TIDE AT ANY TIME.

*For finding the height of the sea or tide at any intermediate hour between High and Low Water.*

Range of Tide.	Subtract from height of High Water.						Add to height of Low Water.						Range of Tide.
	Hours before High Water.			Hours after High Water.			Hours before Low Water.			Hours after Low Water.			
	3	2	1	1	2	3	3	2	1	1	2	3	
Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
GALVESTON, TEXAS.													
$\frac{1}{2}$	0.4	0.2	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.2	0.4	$\frac{1}{2}$
1	0.5	0.3	0.1	0.1	0.3	0.4	0.4	0.2	0.1	0.1	0.3	0.4	1
$1\frac{1}{2}$	0.6	0.3	0.1	0.1	0.3	0.5	0.5	0.3	0.1	0.1	0.3	0.5	$1\frac{1}{2}$
2	0.6	0.4	0.1	0.1	0.3	0.5	0.5	0.3	0.1	0.1	0.3	0.6	2

## EXAMPLE ILLUSTRATING THE USE OF TABLE 2.

1. Required, the height of tide at Boston, Massachusetts, at 7 a. m., on a day when the nearest predicted tides are as follows:

Low water.  
Time. Height.  
5h 07m. —0.6 ft.

High water.  
Time. Height.  
11h 22m. 11.2 ft.

The given time, 7 a. m., is about 2 hours *after* low water, and the range of tide in this case is 11.8 feet. Entering Table 2 for Boston, 2 hours after low water, for the range 11.8 feet (interpolating between 11 and 12 feet), we find 3.3 feet, which, added to —0.6 foot, the height of low water, gives 2.7 feet as the height required.

2. Required, the height of tide at New York, New York, at 6:15 a. m., on a day when the nearest predicted tides are as follows:

High water.  
Time. Height.  
8h 29m. 4.4 ft.

Low water.  
Time. Height.  
9h 51m. 0.1 ft.

The given time, 6:15 a. m., is about  $2\frac{1}{4}$  hours *after* high water, and the range of tide in this case is 4.3 feet. Entering Table 2 for New York,  $2\frac{1}{4}$  hours after high water, for the range 4.3 feet (interpolating between 2 and 3 hours and between 4 and 5 feet), we find 1.8 feet, which, subtracted from 4.4 feet, the height of high water, gives 2.6 feet as the height required.

3. Required, the height of the tide at Charleston, South Carolina, at 8:30 p. m., on a day when the nearest predicted tides are as follows:

Low water.  
Time. Height.  
11h 28m. 0.0.

High water.  
Time. Height.  
17h 52m. 5.0 ft.

The given time, 8:30 p. m., is about  $2\frac{1}{4}$  hours *before* high water, and the range of tide is 5.0 feet. Entering Table 2 for Charleston,  $2\frac{1}{4}$  hours before high water, for the range 5.0 feet (interpolating between 2 and 3 hours), we find 1.3 feet, which, subtracted from 5.0 feet, the height of high water, gives 3.7 feet as the height required.

TABLE 2 A.—HEIGHT OF THE TIDE AT ANY TIME.

*For extending the application of Table 2 B to the height of the tide at any time.*

Duration of rise or fall,—that is, the difference between the times of the tides on either side of the time for which the height is required.

[illegible]

The tabular values are the top argument for entering Table 2 B.

Time before or after high or low water.—that is, the difference between the time for which the height is required and the nearest high or low water.

Time before or after high or low water.—that is, the difference between the time for which the height is required and the nearest high or low water.

0 05	0 12	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 03	0 03	0 02	0 02	0 02	0 02	0 02	0 02	0 02	0 02	0 02	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30													
0 10	0 25	0 21	0 18	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 03	0 03	0 02	0 02	0 02	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30													
0 15	0 37	0 31	0 27	0 23	0 21	0 19	0 17	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 02	0 02	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30												
0 20	0 50	0 41	0 35	0 31	0 28	0 25	0 22	0 21	0 18	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30												
0 25	1 02	0 52	0 44	0 39	0 35	0 31	0 28	0 26	0 22	0 19	0 17	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30										
0 30	1 15	1 02	0 53	0 47	0 41	0 37	0 34	0 31	0 27	0 23	0 21	0 19	0 17	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30								
0 35	1 27	1 12	1 02	0 54	0 48	0 43	0 39	0 36	0 31	0 27	0 24	0 22	0 20	0 18	0 17	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30						
0 40	1 39	1 23	1 11	1 02	0 55	0 50	0 45	0 41	0 35	0 31	0 28	0 25	0 22	0 20	0 19	0 18	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30					
0 45	1 52	1 33	1 20	1 10	1 02	0 56	0 51	0 47	0 40	0 35	0 31	0 28	0 25	0 23	0 21	0 20	0 19	0 17	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30			
0 50	2 04	1 44	1 29	1 18	1 09	1 02	0 56	0 52	0 44	0 39	0 35	0 31	0 28	0 25	0 23	0 21	0 20	0 19	0 17	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30		
0 55	2 17	1 54	1 38	1 25	1 16	1 08	1 02	0 57	0 49	0 43	0 38	0 34	0 31	0 28	0 26	0 24	0 23	0 21	0 20	0 19	0 18	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30
1 00	2 29	2 04	1 56	1 38	1 23	1 15	1 07	1 02	0 58	0 47	0 41	0 37	0 34	0 31	0 27	0 23	0 21	0 20	0 19	0 18	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30	
1 05	2 41	2 15	1 56	1 41	1 30	1 21	1 13	1 07	0 58	0 50	0 45	0 40	0 36	0 31	0 27	0 24	0 22	0 20	0 19	0 18	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45	1 50	1 55	2 00	2 05	2 10	2 15	2 20	2 25	2 30	2 35	2 40	2 45	2 50	2 55	3 00	3 10	3 20	3 30	3 40	3 50	4 00	4 10	4 20	4 30	4 40	4 50	5 00	5 10	5 20	5 30	5 40	5 50	6 00	6 10	6 20	6 30	6 40	6 50	7 00	7 10	7 20	7 30	7 40	7 50	8 00	8 10	8 20	8 30	
1 10	2 54	2 25	2 04	1 49	1 37	1 27	1 19	1 12	1 02	0 54	0 48	0 43	0 38	0 34	0 30	0 26	0 23	0 20	0 19	0 18	0 16	0 14	0 12	0 11	0 10	0 09	0 08	0 07	0 06	0 06	0 05	0 04	0 04	0 03	0 03	0 05	0 10	0 15	0 20	0 25	0 30	0 35	0 40	0 45	0 50	0 55	1 00	1 05	1 10	1 15	1 20	1 25	1 30	1 35	1 40	1 45																																																	

Time before or after high or low water,—that is, the difference between the time for which the height is required and the nearest high or low water.

The above table was computed for tides having periods of rise and fall each equal to one-quarter of a lunar day, or about 6<sup>h</sup> 13<sup>m</sup>. Table 2 A has been made to extend the application of this table to nearly all kinds of tides, except river tides.

TABLE 3.—TIDAL DIFFERENCES.

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (ARCTIC REGIONS).											
ARCTIC ARCHIPELAGO.											
		North.	West.				Local time.		Mean Low Water Springs.		
		° / ' / "	° / ' / "	h. m.			h. m.	h. m.	feet.	feet.	
1	Herschel Island .....	69 37	138 55	9 16	Madras .....	243	- 3 14	- 3 15	-0.5	-0.1	0.80
2	Bay of Mercy .....	74 10	118 20	7 53	Madras .....	243	- 8 12	- 7 23	-0.8	-0.2	0.67
3	Prince of Wales Strait .....	73 00	116 00	7 44	Madras .....	243	- 8 32	- 8 13	0.0	0.0	1.02
4	Winter Bay .....	74 50	111 00	7 24	Madras .....	243	- 6 47	- 6 43	+0.8	0.0	1.29
5	Bridport Inlet, Dealy Island .....	74 55	108 47	7 15	Charleston .....	107	+ 6 21	+ 6 38	-1.6	+0.4	0.60
6	Northumberland Sound .....	76 52	97 00	6 28	Melbourne .....	227	+10 24	+10 15	-0.2	0.0	0.82
7	Refuge Cove, Wellington Channel .....	75 31	92 10	6 09	Charleston .....	107	+ 4 07	+ 4 12	-0.1	+0.6	0.85
8	Griffiths Island, Barrow Strait .....	74 35	95 30	6 22	Madras .....	243	- 8 07	- 8 08	+0.8	0.0	1.29
9	Beechey Island, Barrow Strait .....	74 43	92 00	6 08	Charleston .....	107	+ 4 13	+ 4 20	-0.2	+0.6	0.83
10	Port Leopold, Barrow Strait .....	73 50	90 25	6 02	Charleston .....	107	+ 3 55	+ 4 01	-0.2	+0.6	0.83
11	Port Kennedy, Bellot Strait .....	72 01	94 15	6 17	Charleston .....	107	+ 3 27	+ 3 32	-1.6	+0.4	0.60
12	Fury and Hecla Strait .....	69 25	81 30	5 26	Charleston .....	107	- 0 56	- 0 50	+2.0	+0.9	1.19
HUDSON BAY.											
13	Marble Island .....	62 41	91 10	6 05	Brest .....	275	+ 0 22	+ 0 15	-6.7	-0.9	0.61
14	Port Churchill .....	58 46	94 10	6 17	Brest .....	275	+ 3 18	+ 3 10	-3.6	-0.4	0.78
15	York Factory .....	57 02	92 32	6 10	Brest .....	275	+ 7 27	+ 7 20	-6.7	-0.9	0.61
16	Port Laperrière, Digges Island .....	62 34	78 01	5 12	Brest .....	275	+ 5 12	+ 5 02	-9.4	-1.2	0.45
HUDSON STRAIT.											
17	Port Boucherville, Nottingham I. ....	63 12	77 28	5 10	Brest .....	275	+ 5 18	+ 5 09	-5.2	-0.8	0.70
18	Stupart Bay .....	61 35	71 32	4 46	Liverpool .....	807	- 3 10	- 3 48	-1.8	+0.2	0.90
19	Ashe Inlet .....	62 33	70 35	4 42	Liverpool .....	807	- 2 56	- 3 28	+3.3	+1.1	1.10
20	Koksak River, Ungava Bay .....	58 34	68 12	4 33	Liverpool .....	807	- 2 18	- 2 50	+9.6	+2.0	1.36
21	Port Burwell, Ungava Bay .....	60 25	64 46	4 19	Sheerness .....	291	- 3 28	- 3 12	+2.2	+0.6	1.12
CUMBERLAND SOUND.											
22	Kingua Fiord .....	66 36	67 20	4 29	Sheerness .....	291	+ 5 27	+ 5 38	+3.3	+0.9	1.21
GREENLAND.											
West coast.											
23	Frederiksdal .....	60 01	44 34	2 58	Charleston .....	107	- 4 55	- 4 50	+3.0	+1.2	1.33
24	Nennortalik .....	60 08	45 16	3 01	Charleston .....	107	- 2 17	- 2 14	+2.4	+1.2	1.21
25	Jullanshaab .....	60 42	45 54	3 04	Charleston .....	107	- 2 54	- 2 51	+1.0	+1.0	0.98
26	Arsuk .....	61 12	48 27	3 14	Charleston .....	107	- 1 34	- 1 31	+3.3	+1.6	1.69
27	Frederikshaab .....	62 00	49 37	3 18	Charleston .....	107	- 1 37	- 1 34	+2.7	+1.2	1.27
28	Godthaab .....	64 12	51 44	3 27	Savannah Entr. ....	111	+ 0 02	- 0 05	+4.1	+1.4	1.41
29	Holstenborg .....	67 00	53 42	3 35	Savannah Entr. ....	111	- 0 18	- 0 25	+2.0	+1.2	1.13
30	Whalefish Islands .....	68 50	53 15	3 33	Savannah Entr. ....	111	+ 1 27	+ 1 20	-0.2	+1.0	0.84
31	Godthavn, Disco Island .....	69 16	58 28	3 34	Savannah Entr. ....	111	+ 2 12	+ 2 05	-0.1	+0.9	0.86
32	Upernivik .....	72 50	56 06	3 44	Savannah Entr. ....	111	+ 4 13	+ 4 07	+0.1	+1.1	0.86
33	North Star Bay .....	76 30	68 50	4 35	Savannah Entr. ....	111	+ 4 22	+ 4 16	-0.3	+1.1	0.80
34	Wolstenholm Sound .....	76 33	68 56	4 36	Savannah Entr. ....	111	+ 4 24	+ 4 10	-0.2	+1.0	0.81
35	Port Foulke .....	78 18	73 00	4 52	Savannah Entr. ....	111	+ 4 39	+ 4 16	+1.8	+1.4	1.05
36	Rensselaer Bay .....	78 37	70 53	4 44	Savannah Entr. ....	111	+ 5 08	+ 4 54	+2.5	+1.5	1.16
37	Thank God Harbor, Polaris Bay .....	81 37	61 44	4 07	Charleston .....	107	+ 4 27	+ 4 26	-0.4	+0.8	0.75
GRINNELL LAND.											
38	Cape Lawrence .....	81 21	69 15	4 37	Savannah Entr. ....	111	+ 4 38	+ 4 31	+5.0	+2.0	1.47
39	Fort Conger, Discovery Harbor .....	81 44	64 44	4 19	Charleston .....	107	+ 3 47	+ 3 43	0.0	+0.8	0.83
40	Cape Sheridan .....	82 25	61 30	4 06	Madras .....	241	+ 2 19	+ 2 13	-0.4	0.0	0.84
JAN MAYEN.											
41	Mary Muss Bay .....	71 00	8 28	0 34	Halifax .....	51	+ 3 27	+ 3 06	-1.6	0.0	0.65
ICELAND.											
42	Reikiavik .....	64 12	21 50	1 27	Sheerness .....	291	+ 5 02	+ 5 15	-2.2	-0.2	0.85
GREENLAND.											
East coast.											
43	Cape Borgen .....	75 25	18 02	1 12	Halifax .....	51	+ 4 02	+ 3 42	-2.0	0.0	0.66
44	Cape Philip Broke .....	74 55	17 35	1 10	Halifax .....	51	+ 3 16	+ 2 52	-1.5	0.0	0.63
45	Pendulum Island .....	74 40	18 30	1 14	Nagasaki .....	175	+ 3 17	+ 3 13	-1.0	-0.2	0.86
46	Jackson Island .....	73 55	20 00	1 20	Nagasaki .....	175	+ 3 02	+ 2 58	0.0	0.0	1.00
47	Cape Hold-with-Hope (Broer Ruys) .....	73 28	20 30	1 22	Nagasaki .....	175	+ 2 47	+ 2 43	-0.4	0.0	0.95
48	Nubarvik .....	63 25	42 00	2 48	Madras .....	243	- 1 59	- 2 02	+1.6	+0.2	1.60
49	Cape Farewell .....	59 45	43 56	2 56	Savannah Entr. ....	111	- 2 39	- 2 45	-0.2	+1.0	0.82

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—			Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>h. m.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>East.</i>	
1	4 50	11 05	5 17a	12 08b	1.8	2.3	1.2	2.9	1.6	0.9	.....	1.8	1.2	1.3	43.0	
2	12 20	7 00	12 51a	8 11a	1.5	2.0	1.0	2.5	1.5	0.8	.....	1.7	1.0	1.2	90.0	
3	12 00	6 11	12 25a	7 07a	2.3	3.0	1.5	3.5	1.8	1.0	.....	2.1	1.5	1.6	90.0	
4	1 20	7 40	1 41b	8 30a	2.9	3.8	1.9	4.3	2.0	1.1	.....	2.3	1.9	1.9	120.0	
5	1 38	8 00	1 59b	8 49a	3.1	4.0	2.0	4.5	2.1	1.1	.....	2.4	2.0	2.1	136.0 E.	
6	12 20	6 10	12 51a	7 22a	1.4	1.8	0.9	2.4	1.4	0.8	.....	1.6	0.9	1.1	158.0 W.	
7	11 50	5 40	12 08a	6 22a	4.4	5.7	2.8	6.1	2.5	1.4	.....	2.9	2.8	2.8	139.0 W.	
8	0 05	6 20	0 26b	7 10a	2.9	3.8	1.9	4.3	2.0	1.1	.....	2.3	1.9	1.9	148.0 W.	
9	11 56	5 48	12 14a	6 29a	4.3	5.6	2.8	6.0	2.5	1.4	13 51	2.8	2.8	2.8	West.	
10	11 38	5 29	11 50a	4 53a	4.3	5.5	2.9	5.8	2.6	1.0	13 00	2.7	2.8	2.5	137.0	
11	11 10	5 00	11 24a	4 18a	3.1	4.0	2.1	4.4	2.2	0.8	.....	2.3	2.0	1.9	134.0	
12	6 50	0 40	7 00a	0 10a	6.2	8.0	4.2	8.0	3.1	1.1	.....	3.3	4.0	3.6	81.5	
13	4 00	10 15	3 59a	10 18a	8.9	12.0	5.1	8.3	0.4	0.2	.....	0.4	6.0	4.2	East.	
14	6 56	0 45	6 55a	0 47b	11.5	15.5	6.6	10.9	0.4	0.2	.....	0.4	7.8	4.5	10.0	
15	11 05	4 55	11 04a	4 58b	8.9	12.0	5.1	8.3	0.4	0.2	.....	0.4	6.0	4.2	7.0	
16	8 52	2 39	8 50a	2 43b	6.6	9.0	3.8	6.2	0.3	0.2	6 30	0.4	4.5	3.1	44.0 W.	
17	8 58	2 46	8 52a	2 47b	10.2	13.5	6.1	9.8	0.3	0.9	8 42	1.0	6.8	5.0	West.	
18	7 50	1 37	7 45a	1 40b	19.2	25.1	12.3	18.7	0.8	1.4	8 44	1.6	12.6	9.5	48.0	
19	8 04	1 52	8 01a	1 53b	23.5	31.2	14.4	22.3	0.6	1.4	8 12	1.5	15.6	11.3	52.0	
20	8 42	2 30	8 39a	2 31b	28.9	38.5	17.6	28.6	0.6	1.5	.....	1.7	19.2	14.4	42.0	
21	9 04	2 52	9 05a	2 46b	15.1	19.7	9.8	14.6	1.4	0.2	9 16	1.4	9.8	7.1	49.0	
22	5 29	11 42	5 28a	11 49a	15.9	21.0	9.8	16.1	1.8	1.5	2 42	2.3	10.5	8.0	66.5	
23	2 55	9 10	2 59a	8 50b	6.9	9.4	3.8	7.4	2.1	0.5	.....	2.1	4.7	3.3	46.5	
24	5 33	11 46	5 38a	11 25b	6.3	8.6	3.4	6.7	2.0	0.5	6 26	2.0	4.8	3.0	47.0	
25	4 56	11 09	5 01a	10 46b	5.1	7.0	2.8	5.5	1.8	0.4	.....	1.8	3.5	2.5	48.0	
26	6 15	0 03	6 19a	0 15a	8.8	12.0	4.8	9.3	2.3	0.6	.....	2.4	6.0	4.3	49.5	
27	6 12	0 00	6 16a	0 20a	6.6	9.0	3.6	7.1	2.0	0.5	.....	2.0	4.5	3.2	51.5	
28	6 40	0 27	6 41a	0 13a	9.5	12.5	6.0	9.9	2.0	0.4	7 07	2.0	6.2	4.5	56.5	
29	6 20	0 07	6 22a	0 09a	7.6	10.0	4.8	7.9	1.8	0.3	.....	1.8	5.0	3.6	62.0	
30	8 05	1 52	8 07a	1 34a	5.7	7.5	3.6	6.0	1.6	0.3	.....	1.6	3.8	2.6	64.0	
31	8 50	2 37	8 52a	2 19a	5.8	7.6	3.7	6.0	1.6	0.3	.....	1.6	3.8	2.6	64.5	
32	10 50	4 38	10 56a	4 31a	5.8	8.0	3.0	6.0	0.7	0.6	.....	0.8	4.0	2.8	75.0	
33	10 58	4 46	11 05a	4 37a	5.4	7.5	2.9	5.6	0.6	0.6	.....	0.9	3.8	2.6	97.0	
34	11 00	4 40	11 07a	4 32a	5.5	7.6	2.9	5.6	0.6	0.6	.....	0.9	3.8	2.6	97.5	
35	11 14	4 45	11 20a	4 38a	7.1	9.9	3.7	7.4	0.7	0.7	.....	1.0	5.0	3.4	107.0	
36	11 43	5 23	11 49a	5 16a	7.8	10.8	4.1	8.0	0.8	0.7	.....	1.0	5.4	3.9	105.0	
37	12 14	5 58	12 22a	5 49a	3.9	5.4	2.0	3.8	0.5	0.5	.....	0.7	2.7	2.0	95.0	
38	11 09	5 01	11 14a	4 55a	9.9	13.8	5.1	10.1	0.9	0.8	.....	1.2	6.9	4.8	105.0	
39	11 34	5 20	11 42a	5 11a	4.3	5.9	2.2	4.1	0.6	0.5	14 24	0.8	3.0	2.1	99.0	
40	10 35	4 20	10 46a	4 06a	1.9	2.6	1.0	1.8	0.4	0.3	.....	0.5	1.8	0.9	95.0	
41	11 21	5 07	11 35b	5 07b	2.8	3.7	1.9	2.9	0.1	0.6	5 00	0.6	1.8	1.6	28.0	
42	5 10	11 25	5 13a	11 24a	11.5	14.5	8.4	12.6	0.4	1.2	.....	1.3	7.2	6.3	35.5	
43	11 55	5 43	12 01a	5 41a	2.4	3.1	1.8	3.0	0.2	0.6	.....	0.6	1.6	1.5	38.5	
44	11 10	4 58	11 15a	4 56a	2.9	3.7	2.1	3.5	0.2	0.6	.....	0.6	1.8	1.8	38.0	
45	11 05	4 53	11 08a	4 52a	5.3	6.7	3.9	6.2	0.3	0.8	.....	0.8	3.4	3.2	37.5	
46	10 50	4 38	10 53a	4 37a	6.2	7.9	4.5	7.2	0.3	0.9	.....	0.9	4.0	3.7	39.0	
47	10 35	4 23	10 38a	4 22a	5.9	7.5	4.3	6.9	0.3	0.9	.....	0.9	3.8	3.6	39.0	
48	6 20	0 08	6 26a	0 19a	3.6	4.9	2.0	3.9	1.5	0.4	.....	1.5	2.4	1.7	49.5	
49	4 00	10 18	4 05a	9 50b	5.5	7.5	3.0	5.9	1.8	0.5	.....	1.9	3.8	2.6	46.0	



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.						
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		Ratio of ranges.	
			Arc.	Time.			HW.	LW.	HW.	LW.		
<b>NORTH AMERICA (EAST COAST).</b>												
<b>LABRADOR.</b>		<i>North.</i>	<i>West.</i>				<i>Local time.</i>		<i>Mean Low Water Springs.</i>			
		<i>° ' "</i>	<i>° ' " h. m.</i>				<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>		
1	Eclipse Harbor .....	59 50	64 10	4 17	Charleston .....	107	+0 13	+0 16	-0.8	+0.6	0.71	
2	Nachvak Bay .....	59 05	63 20	4 13	Charleston .....	107	-0 47	-0 44	-0.6	+0.7	0.73	
3	Nain .....	56 34	61 44	4 07	Sandy Hook .....	88	-0 33	-0 37	+0.9	+0.8	1.04	
4	Hopedale Harbor .....	55 25	60 20	4 01	Sandy Hook .....	83	-2 03	-2 07	+1.2	+0.8	1.11	
5	Indian Harbor .....	54 30	57 30	3 50	Sandy Hook .....	83	-1 23	-1 27	+1.4	+0.8	1.13	
6	Independent Harbor .....	53 51	56 55	3 48	Sandy Hook .....	83	-0 53	-0 57	+0.4	+0.7	0.94	
7	Indian Tickle .....	53 34	56 00	3 44	Sandy Hook .....	83	-1 06	-1 10	+0.6	+0.7	0.98	
8	Seal Islands .....	53 14	55 42	3 43	Sandy Hook .....	83	-1 03	-1 07	+0.2	+0.7	0.89	
9	Venison Tickle .....	52 58	55 46	3 43	Sandy Hook .....	88	-0 56	-1 00	+0.2	+0.7	0.89	
10	Occasional Harbor .....	52 40	55 47	3 43	Sandy Hook .....	83	-0 56	-0 59	-0.4	+0.6	0.81	
11	Fishing Ship Harbor .....	52 36	55 45	3 43	Sandy Hook .....	83	-0 49	-0 53	+0.2	+0.7	0.89	
12	Spears Harbor .....	52 26	55 38	3 43	St. Johns .....	47	+0 23	+0 21	+0.9	+0.1	1.31	
13	St. Lewis Sound .....	52 19	55 44	3 43	St. Johns .....	47	-0 19	-0 21	+0.2	0.0	1.04	
14	Chateau Bay, Strait of Belle Isle ..	52 00	55 53	3 44	Halifax .....	51	-0 35	-1 12	-2.0	0.0	0.56	
15	Red Bay, Strait of Belle Isle .....	51 45	56 26	3 46	Halifax .....	51	+0 57	+0 10	-2.0	0.0	0.56	
16	Forteau Bay, Strait of Belle Isle ..	51 27	56 23	3 46	Halifax .....	51	+1 57	+1 09	-1.2	0.0	0.73	
<b>NEWFOUNDLAND.</b>							<i>Time meridian, 60° W.</i>					
<i>East coast.</i>												
17	Pistolet Bay .....	51 32	55 45	3 43	St. Johns .....	47	+0 23	+0 21	-0.2	0.0	0.96	
18	Hare Bay .....	51 17	55 55	3 44	Sandy Hook .....	83	+0 39	+0 35	+1.6	+0.8	1.13	
19	Canada Bay .....	50 45	56 08	3 45	Sandy Hook .....	83	-1 02	-1 16	0.0	+0.6	0.55	
20	Cat Head, White Bay .....	50 08	56 41	3 47	St. Johns .....	47	-0 11	-0 13	+1.0	+0.2	1.35	
21	Fortune Harbor, Notre Dame Bay ..	49 32	55 15	3 41	St. Johns .....	47	-0 04	-0 06	+0.6	0.0	1.23	
22	Fogo Harbor .....	49 44	54 16	3 37	St. Johns .....	47	-0 07	-0 09	+0.9	+0.1	1.31	
23	Barrow Harbor, Bonavista Bay .....	48 40	53 36	3 34	St. Johns .....	47	-1 12	-1 14	+0.8	+0.2	1.27	
24	Hearts Content, Trinity Bay .....	47 53	53 23	3 34	St. Johns .....	47	+0 06	+0 06	+0.6	0.0	1.19	
25	Grace Harbor, Conception Bay .....	47 42	53 13	3 33	St. Johns .....	47	-0 01	-0 03	+0.9	+0.1	1.31	
26	St. Johns .....	47 34	52 42	3 31	St. Johns .....	47	0 00	0 00	0.0	0.0	1.00	
<i>South coast.</i>												
27	Cape Race .....	46 39	53 07	3 32	Sandy Hook .....	83	-1 12	-1 16	+1.0	+0.8	1.04	
28	Trepassey Harbor .....	46 43	53 33	3 34	Sandy Hook .....	83	-1 10	-1 14	+1.2	+0.8	1.06	
29	St. Mary Harbor, St. Mary Bay .....	46 55	53 35	3 34	Sandy Hook .....	83	-0 30	-0 34	+2.0	+1.0	1.21	
30	Cape St. Mary, Placentia Bay .....	46 50	54 12	3 37	Sandy Hook .....	83	+0 23	+0 19	+1.7	+0.9	1.15	
31	Woody Island, Placentia Bay .....	47 47	54 13	3 37	Sandy Hook .....	83	+0 03	-0 01	+1.6	+0.8	1.13	
32	Burin Harbor, Placentia Bay .....	47 02	55 11	3 41	Sandy Hook .....	83	+0 43	+0 39	+1.0	+0.8	1.04	
33	Great Laun .....	46 56	55 33	3 42	Sandy Hook .....	83	+0 14	+0 10	+1.6	+0.8	1.13	
34	St. Pierre Island .....	46 47	56 09	3 45	Sandy Hook .....	83	+0 35	+0 31	+1.2	+0.8	1.06	
35	Brunet Islands .....	47 16	55 55	3 44	Sandy Hook .....	83	+1 04	+1 00	+1.0	+0.8	1.04	
36	Grand Bank Harbor, Fortune Bay ..	47 06	55 44	3 43	Sandy Hook .....	83	+0 48	+0 44	+0.8	+0.8	1.00	
37	Grand le Pierre H., Fortune Bay ..	47 09	54 46	3 39	Sandy Hook .....	83	+1 05	+1 01	+1.4	+0.8	1.11	
38	Breton Harbor, Fortune Bay .....	47 30	55 47	3 43	Sandy Hook .....	83	+0 52	+0 48	+1.7	+0.9	1.15	
39	Hermitage Cove .....	47 32	55 55	3 44	Sandy Hook .....	83	+0 46	+0 42	+1.6	+0.8	1.13	
40	Rencontre Bay .....	47 37	56 37	3 46	Sandy Hook .....	83	+0 58	+0 54	+1.0	+0.8	1.02	
41	La Hune Bay .....	47 33	56 50	3 47	Sandy Hook .....	83	+0 44	+0 40	+1.0	+0.8	1.04	
42	Burgeo Islands .....	47 36	57 37	3 50	Sandy Hook .....	83	+0 39	+0 35	+0.8	+0.8	1.00	
43	La Folle Bay .....	47 40	58 23	3 54	Sandy Hook .....	83	+1 11	+1 07	+0.7	+0.7	0.98	
44	Port Basque .....	47 35	59 07	3 56	Sandy Hook .....	83	+1 15	+1 11	+0.3	+0.7	0.89	
<i>West coast.</i>												
<i>Gulf of St. Lawrence.</i>												
45	Codroy Road .....	47 53	59 24	3 58	Halifax .....	51	+0 59	+0 29	-0.9	+0.1	0.77	
46	St. George Harbor .....	48 28	58 21	3 53	Halifax .....	51	+1 09	+0 37	-1.2	0.0	0.70	
47	Frenchman Cove, Bay of Islands ..	49 00	58 09	3 53	Halifax .....	51	+1 22	+0 46	-0.8	0.0	0.82	
48	Bonne Bay .....	49 34	57 57	3 52	Halifax .....	51	+1 33	+0 57	-0.6	0.0	0.84	
49	Cowhead Harbor .....	49 55	57 47	3 51	Halifax .....	51	+1 42	+1 03	-0.4	0.0	0.89	
50	Hawke Harbor .....	50 37	57 12	3 49	Halifax .....	51	+1 55	+1 12	-0.5	+0.1	0.87	
51	Port au Choix .....	50 44	57 21	3 49	Halifax .....	51	+1 50	+1 08	+1.0	+0.2	1.17	
52	Good Bay .....	50 48	57 12	3 49	Halifax .....	51	+1 56	+1 13	+0.8	+0.3	1.15	
53	Castors Harbor, St. John Bay .....	50 54	56 57	3 48	Halifax .....	51	+2 00	+1 15	-1.2	0.0	0.75	
54	St. Genevieve Bay .....	51 09	56 48	3 47	Halifax .....	51	+2 08	+1 21	-0.2	0.0	0.94	
<b>QUEBEC.</b>												
<i>Gulf of St. Lawrence.</i>												
55	Belles Amour Bay .....	51 27	57 26	3 50	Halifax .....	51	+0 47	-0 01	-1.6	0.0	0.66	
56	Mistanoque Harbor .....	51 16	58 12	3 53	Halifax .....	51	+2 20	+1 25	-0.5	+0.1	0.87	
57	Antrobus Island .....	50 38	59 17	3 57	Halifax .....	51	+2 24	+1 21	-1.2	0.0	0.73	
58	Wapitagan Harbor .....	50 12	60 01	4 00	Halifax .....	51	+2 28	+0 26	-1.2	0.0	0.73	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn.).	Spring (Sg.).	Neap (Np.).	Great tropic (Ge.).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>	
1	8 00	1 48	8 06a	1 21b	3.7	5.0	2.0	4.0	1.6	0.4	.....	1.5	2.5	1.7	47.0	
2	7 00	0 48	7 06a	0 21b	3.8	5.2	2.1	4.1	1.5	0.4	.....	1.6	2.6	1.8	46.0	
3	7 00	0 48	6 57a	1 07b	4.9	6.5	3.0	5.4	1.3	0.3	.....	1.4	3.2	2.3	40.0	
4	5 30	11 43	5 27a	12 01a	5.2	6.9	3.2	5.7	1.4	0.3	.....	1.4	3.4	2.6	39.0	
5	6 10	12 23	6 07a	12 40a	5.3	7.0	3.2	5.8	1.5	0.3	.....	1.4	3.5	2.7	38.0	
6	6 40	0 28	6 36a	0 48b	4.4	5.8	2.7	4.9	1.3	0.3	.....	1.3	2.9	2.2	37.0	
7	6 27	0 15	6 24a	0 33b	4.6	6.0	2.8	5.1	1.3	0.3	.....	1.3	3.0	2.3	37.0	
8	6 30	0 18	6 26a	0 38b	4.2	5.5	2.6	4.7	1.3	0.3	.....	1.3	2.8	2.1	37.0	
9	6 37	0 25	6 33a	0 46b	4.2	5.5	2.6	4.7	1.3	0.3	.....	1.3	2.8	2.1	36.0	
10	6 38	0 26	6 34a	0 47b	3.8	5.0	2.3	4.3	1.2	0.3	.....	1.2	2.5	1.9	36.0	
11	6 44	0 32	6 40a	0 52b	4.2	5.5	2.6	4.7	1.3	0.3	.....	1.3	2.8	2.1	36.0	
12	7 12	1 00	7 06a	1 21b	3.4	4.5	2.0	3.8	1.1	0.2	.....	1.1	2.2	1.7	36.0	
13	6 30	0 18	6 26a	0 42b	2.7	3.5	1.6	3.1	1.0	0.2	.....	1.0	1.8	1.4	35.0	
14	7 30	1 05	6 57a	1 09b	2.4	3.1	1.6	2.9	0.2	1.2	.....	1.2	1.6	1.7	35.0	
15	9 00	2 25	8 27a	2 29b	2.4	3.1	1.6	2.9	0.2	1.2	.....	1.2	1.6	1.7	34.0	
16	10 00	3 24	9 30a	3 28b	3.1	4.0	2.0	3.7	0.2	1.4	.....	1.4	2.0	2.2	34.0	
17	7 29	1 17	7 24a	1 43b	2.5	3.3	1.5	2.9	1.0	0.2	.....	1.0	1.6	1.3	34.0	
18	8 28	2 16	8 25a	2 33b	5.3	7.0	3.2	5.8	1.4	0.3	.....	1.4	3.5	2.7	34.0	
19	6 36	0 24	6 32a	0 44b	4.0	5.2	2.4	4.4	1.2	0.3	.....	1.2	2.6	2.0	32.0	
20	6 50	0 38	6 46a	1 00b	3.5	4.6	2.1	3.9	1.1	0.2	.....	1.2	2.3	1.8	31.0	
21	7 04	0 52	7 00a	1 14b	3.2	4.0	1.9	3.6	1.1	0.2	.....	1.1	2.0	1.6	31.0	
22	7 05	0 53	7 01a	1 14b	3.4	4.5	2.1	3.8	1.1	0.2	.....	1.1	2.2	1.7	32.0	
23	6 08	12 16	5 56a	12 37a	3.3	4.4	2.0	3.7	1.1	0.2	.....	1.1	2.2	1.7	30.0	
24	7 23	1 11	7 19a	1 34b	3.1	4.1	1.9	3.4	1.1	0.2	.....	1.1	2.0	1.6	29.0	
25	7 15	1 03	7 11a	1 24b	3.4	4.5	2.1	3.8	1.1	0.2	.....	1.1	2.2	1.7	29.0	
26	7 12	1 01	7 07a	1 26b	2.5	3.3	1.5	2.9	1.0	0.2	6 20	1.0	1.6	1.3	29.0	
27	6 50	0 38	6 47a	0 57b	4.9	6.5	3.0	5.4	1.3	0.3	.....	1.4	3.2	2.5	28.0	
28	6 50	0 38	6 47a	0 56b	5.0	6.6	3.1	5.5	1.4	0.3	.....	1.4	3.3	2.5	28.0	
29	7 30	1 18	7 27a	1 34b	5.7	7.5	3.5	6.3	1.6	0.3	.....	1.4	3.8	2.9	28.0	
30	8 20	2 08	8 17a	2 25b	5.4	7.2	3.3	5.9	1.4	0.3	.....	1.4	3.6	2.7	27.0	
31	8 00	1 48	7 57a	2 05b	5.3	7.0	3.2	5.8	1.4	0.3	.....	1.4	3.5	2.7	28.0	
32	8 35	2 23	8 32a	2 42b	4.9	6.5	3.0	5.4	1.3	0.3	.....	1.4	3.2	2.5	27.0	
33	8 05	1 53	8 02a	2 11b	5.3	7.0	3.2	5.8	1.4	0.3	.....	1.4	3.5	2.7	27.0	
34	8 23	2 11	8 20a	2 29b	5.0	6.6	3.1	5.5	1.4	0.3	.....	1.4	3.3	2.5	27.0	
35	8 53	2 41	8 50a	3 00b	4.9	6.5	3.0	5.4	1.3	0.3	.....	1.4	3.2	2.5	27.0	
36	8 38	2 26	8 35a	2 44b	4.7	6.2	2.9	5.2	1.3	0.3	.....	1.3	3.1	2.4	27.0	
37	9 00	2 48	8 57a	3 06b	5.2	6.9	3.2	5.7	1.4	0.3	.....	1.4	3.4	2.6	28.0	
38	8 42	2 30	8 39a	2 47b	5.4	7.1	3.3	5.9	1.4	0.3	.....	1.4	3.6	2.7	28.0	
39	8 35	2 23	8 32a	2 40b	5.3	7.0	3.2	5.8	1.4	0.3	.....	1.4	3.5	2.7	28.0	
40	8 45	2 33	8 41a	2 53b	4.8	6.3	2.9	5.3	1.3	0.3	.....	1.4	3.2	2.4	27.0	
41	8 30	2 18	8 27a	2 37b	4.9	6.4	3.0	5.4	1.3	0.3	.....	1.4	3.2	2.5	27.0	
42	8 22	2 10	8 19a	2 28b	4.7	6.2	2.9	5.2	1.3	0.3	.....	1.3	3.1	2.4	27.0	
43	8 50	2 38	8 47a	2 56b	4.6	6.0	2.8	5.1	1.3	0.3	.....	1.3	3.0	2.3	27.0	
44	8 52	2 40	8 48a	3 00b	4.2	5.5	2.6	4.7	1.3	0.3	.....	1.3	2.8	2.1	26.0	
45	8 50	2 32	8 22a	2 36b	3.3	4.3	2.1	3.9	0.2	1.4	.....	1.4	2.2	2.2	27.0	
46	9 05	2 45	8 37a	2 49b	3.0	3.9	1.9	3.5	0.2	1.3	.....	1.3	2.0	2.0	28.0	
47	9 20	2 58	8 54a	3 01b	3.5	4.5	2.3	4.1	0.2	1.4	.....	1.4	2.2	2.3	29.0	
48	9 30	3 06	9 04a	3 09b	3.6	4.6	2.3	4.1	0.2	1.5	.....	1.5	2.3	2.4	30.0	
49	9 40	3 13	9 14a	3 16b	3.8	4.9	2.5	4.4	0.2	1.5	.....	1.5	2.4	2.5	30.0	
50	9 55	3 24	9 28a	3 28b	3.7	4.8	2.4	4.3	0.3	1.5	.....	1.5	2.4	2.4	32.0	
51	9 50	3 20	9 28a	3 23b	5.0	6.5	3.2	5.7	0.3	1.7	.....	1.7	3.2	3.2	32.0	
52	9 56	3 25	9 33a	3 28b	4.9	6.4	3.2	5.6	0.3	1.7	.....	1.7	3.2	3.2	32.0	
53	10 00	3 27	9 31a	3 31b	3.2	4.1	2.1	3.8	0.3	1.4	.....	1.4	2.0	2.2	32.0	
54	10 10	3 35	9 45a	3 38b	4.0	5.2	2.6	4.6	0.3	1.5	.....	1.5	2.6	2.6	33.0	
55	8 45	2 10	8 15a	2 14b	2.8	3.6	1.8	3.3	0.6	1.3	.....	1.3	1.8	1.9	33.0	
56	10 15	3 33	9 48a	3 37b	3.7	4.8	2.4	4.3	0.7	1.0	.....	1.5	2.4	2.4	33.0	
57	10 15	3 25	9 45a	3 29b	3.1	4.0	2.0	3.7	1.0	1.0	.....	1.3	2.0	2.1	31.0	
58	10 15	2 26	9 45a	2 30b	3.1	4.0	2.0	3.7	1.0	0.8	.....	1.3	2.0	2.1	30.0	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.					
		Latitude.	Longitude.		Name.	Page.	Time.		Height.							
			Arc.	Time.			HW.	LW.	HW.	LW.						
<b>NORTH AMERICA (EAST COAST)—Continued.</b>																
<b>QUEBEC—continued.</b>																
<b>Gulf of St. Lawrence—Continued.</b>																
		North.	West.				<i>Time meridian, 60° W.</i>		<i>Mean Low Water Springs.</i>							
		°	°	<i>h. m.</i>			<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>						
1	Kegashka Bay.....	50 11	61 16	4 05	Halifax .....	51	+ 2 48	+ 1 08	- 1.2	0.0	0.73					
2	Little Natashquan Harbor.....	50 12	61 50	4 07	Halifax .....	51	+ 3 05	+ 1 47	- 1.2	0.0	0.73					
3	Appetetat Bay .....	50 19	63 00	4 12	Halifax .....	51	+ 3 20	+ 2 03	- 1.2	0.0	0.73					
4	Mingan Harbor .....	50 17	64 02	4 16	Halifax .....	51	+ 5 55	+ 4 38	- 0.5	+0.1	0.87					
<b>Anticosti Island.</b>																
5	West Point Light.....	49 52	64 32	4 18	Halifax .....	51	+ 6 41	+ 5 18	- 0.5	+0.1	0.87					
6	Bear Bay .....	49 31	62 26	4 10	Halifax .....	51	+ 4 58	+ 3 35	- 1.2	0.0	0.73					
7	East Point.....	49 08	61 39	4 07	Halifax .....	51	+ 3 25	+ 2 02	- 1.6	0.0	0.66					
8	Southwest Point Light.....	49 24	63 36	4 14	Halifax .....	51	+ 6 04	+ 5 29	+ 0.7	+0.1	1.15					
<b>St. Lawrence River.</b>																
9	Cape Rosier Light.....	48 52	64 12	4 17	New York .....	79	+ 6 07	+ 4 55	+ 0.8	+0.4	1.11					
10	Cape Magdalen Light.....	49 16	65 19	4 21	New York .....	79	+ 6 19	+ 5 09	+ 1.6	+0.4	1.27					
11	Martin River Light .....	49 13	66 09	4 25	New York .....	79	+ 6 27	+ 5 30	+ 2.4	+0.4	1.45					
12	Caroussel Light .....	50 06	66 23	4 26	New York .....	79	+ 6 34	+ 5 29	+ 3.2	+0.4	1.61					
13	Cawee Island .....	49 50	67 07	4 28	New York .....	79	+ 6 38	+ 5 36	+ 4.0	+0.6	1.80					
14	Cape Chatte Light.....	49 06	66 45	4 27	New York .....	79	+ 6 46	+ 6 20	+ 7.5	+1.1	2.45					
<b>Time meridian, 75° W.</b>																
15	Point de Monts Light .....	49 20	67 22	4 29	New York .....	79	+ 5 46	+ 5 22	+ 6.6	+1.0	2.26					
16	Matane Light .....	48 52	67 33	4 30	New York .....	79	+ 5 49	+ 5 25	+ 6.0	+0.6	2.20					
17	Little Metis .....	48 41	68 01	4 32	New York .....	79	+ 5 51	+ 5 27	+ 7.5	+1.1	2.45					
18	Manicouagan Shoal Light.....	49 06	68 12	4 33	New York .....	79	+ 5 54	+ 5 06	+ 6.9	+0.7	2.41					
19	Father Point Light .....	48 31	68 28	4 34	New York .....	79	+ 5 54	+ 5 30	+ 8.4	+1.2	2.64					
20	Bic Island.....	48 24	68 53	4 36	New York .....	79	+ 5 59	+ 5 38	+ 8.8	+0.8	2.80					
21	Tadoussac, Saguenay River .....	48 09	69 43	4 39	New York .....	79	+ 6 26	+ 6 06	+11.6	+1.0	3.40					
22	Chicoutimi, Saguenay River .....	48 34	71 05	4 44	New York .....	79	+ 6 43	+ 7 42	+ 6.9	+0.7	2.41					
23	Brandy Pots Light .....	47 52	69 41	4 39	New York .....	79	+ 6 40	+ 6 19	+11.6	+1.0	3.40					
24	Murray Bay .....	47 39	70 08	4 41	New York .....	79	+ 7 22	+ 7 10	+11.2	+1.4	3.21					
25	Orignaux Point Light.....	47 30	70 02	4 40	New York .....	79	+ 7 29	+ 7 18	+12.1	+1.1	3.50					
26	Coudres Island .....	47 21	70 26	4 42	New York .....	79	+ 7 58	+ 7 50	+11.6	+1.6	3.30					
27	L'Islet .....	47 08	70 22	4 41	New York .....	79	+ 8 59	+ 8 55	+12.6	+1.0	3.61					
28	Beaujeu Channel .....	47 05	70 29	4 42	New York .....	79	+ 9 19	+ 9 16	+12.5	+1.5	3.49					
29	Grosse Isle .....	47 02	70 40	4 43	New York .....	79	+ 9 17	+ 9 41	+13.5	+1.1	3.82					
30	Berthier .....	46 56	70 43	4 43	New York .....	79	+ 9 34	+10 00	+11.6	+1.6	3.30					
31	St. Laurent Light, Orleans Island.....	46 52	71 03	4 44	New York .....	79	+ 9 58	+10 36	+12.2	+1.0	3.52					
32	Quebec Dry Dock .....	46 49	71 12	4 45	New York .....	79	+10 14	+11 00	+ 9.6	+0.8	2.98					
33	St. Nicholas .....	46 42	71 24	4 46	New York .....	79	+10 49	+11 35	+11.2	+1.4	3.21					
34	St. Augustin .....	46 45	71 28	4 45	New York .....	79	+11 00	+11 52	+10.6	+1.4	3.11					
35	Ste. Croix .....	46 37	71 45	4 47	New York .....	79	+11 45	+13 00	+ 9.4	+1.2	2.83					
36	Point Platon .....	46 40	71 51	4 47	New York .....	79	+11 55	+13 11	+ 8.8	+1.2	2.74					
37	Grondine Light .....	46 36	72 04	4 48	New York .....	79	-12 16	-10 31	+ 3.7	+0.5	1.73					
38	Cape Roche Light.....	46 33	72 10	4 49	New York .....	79	-11 52	-10 00	+ 1.2	+0.4	1.21					
39	Batiscan Light .....	46 31	72 15	4 49	New York .....	79	-10 55	- 8 59	- 1.4	+0.2	0.64					
40	Champlain Light.....	46 26	72 21	4 49	New York .....	79	-10 24	- 8 17	- 2.1	+0.1	0.51					
41	Three Rivers .....	46 20	72 33	4 50	New York .....	79	- 9 51	- 7 35	- 3.2	0.0	0.25					
<b>Gulf of St. Lawrence.</b>																
42	O'Hara Point Light, Gaspé Bay.....	48 50	64 32	4 18	Halifax .....	51	+ 7 05	+ 5 48	- 0.2	0.0	0.96					
43	Cape Despair Light.....	48 26	64 18	4 17	Halifax .....	51	+ 6 24	+ 5 17	- 0.8	0.0	0.82					
44	Macquereau Point, Chaleur Bay.....	48 12	64 46	4 19	Halifax .....	51	+ 6 51	+ 5 52	- 0.6	+0.2	0.84					
45	Carlisle, Chaleur Bay .....	48 01	65 20	4 21	Halifax .....	51	+ 7 18	+ 6 28	- 0.5	+0.1	0.87					
46	Carleton Point, Chaleur Bay.....	48 05	66 07	4 24	Halifax .....	51	+ 7 30	+ 6 47	+ 2.6	+0.2	1.54					
<b>NEW BRUNSWICK.</b>																
<b>Gulf of St. Lawrence.</b>																
47	Campbellton, Chaleur Bay.....	48 01	66 40	4 27	Halifax .....	51	+ 8 33	+ 8 01	+ 4.4	+0.4	1.92					
48	Dalhousie, Chaleur Bay .....	48 04	66 21	4 25	Halifax .....	51	+ 7 41	+ 6 57	+ 3.4	+0.4	1.73					
49	Bathurst, Chaleur Bay .....	47 39	65 37	4 22	Halifax .....	51	+ 7 29	+ 7 17	+ 0.9	+0.3	1.15					
50	Carquette, Chaleur Bay .....	47 50	64 54	4 20	Halifax .....	51	+ 7 12	+ 7 00	0.0	+0.2	0.98					
51	Miscou Harbor, Chaleur Bay.....	47 55	64 29	4 18	Halifax .....	51	+ 6 55	+ 6 43	- 1.2	0.0	0.73					
52	North Tracadie Gully Light .....	47 30	64 52	4 19	Halifax .....	51	+ 8 11	+ 8 14	- 2.6	-0.2	0.45					
53	Lower Neguac, Miramichi Bay .....	47 16	65 08	4 20	Halifax .....	51	+ 9 48	+ 9 54	- 2.6	-0.2	0.42					
54	Richibucto Head Light .....	46 40	64 42	4 19	Halifax .....	51	- 1 39	- 1 31	- 2.2	-0.2	0.51					
55	Shediac Island Light.....	46 15	64 32	4 18	Halifax .....	51	0 00	+ 0 08	- 2.2	-0.2	0.51					
56	Jourdain Islet Light .....	46 10	63 48	4 15	Halifax .....	51	+ 1 32	+ 1 40	- 1.0	0.0	0.75					
57	Cape Tormentine .....	46 07	63 46	4 15	Halifax .....	51	+ 2 37	+ 2 16	- 1.1	-0.1	0.77					

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc.)	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWL.	LWL.	HHWL.	LLWL.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>	
1	10 30	8 08	10 00a	8 07b	8.1	4.0	2.0	3.7	1.2	0.5	.....	1.3	2.0	1.7	29.0	
2	10 45	8 40	10 15a	8 44b	8.1	4.0	2.0	3.7	1.2	0.5	.....	1.3	2.0	1.7	29.0	
3	10 55	8 51	10 25a	8 55b	8.1	4.0	2.0	3.7	1.2	0.5	.....	1.3	2.0	1.7	28.5	
4	1 01	6 22	0 34b	6 26b	3.7	4.8	2.4	4.3	1.4	0.5	.....	1.5	2.4	2.0	27.5	
5	1 45	7 00	1 18b	7 04b	8.7	4.8	2.4	4.3	1.1	0.5	.....	1.5	2.4	2.0	27.0	
6	0 10	5 25	12 05a	5 29b	8.1	4.0	2.0	3.7	1.1	0.5	.....	1.3	2.0	1.7	27.5	
7	11 05	3 55	10 35a	8 59b	2.8	8.6	1.8	3.8	1.1	0.5	.....	1.3	1.8	1.6	27.5	
8	1 12	7 15	0 46b	7 18b	4.9	6.0	3.7	5.4	1.2	0.6	.....	1.5	3.0	2.8	27.0	
9	1 5	6 40	1 21b	7 08b	4.9	5.5	4.1	5.8	1.6	0.8	.....	1.8	2.8	2.4	25.5	
10	1 33	6 50	1 27b	7 15b	5.6	6.4	4.7	6.0	1.8	0.8	.....	2.0	3.2	2.8	25.5	
11	1 37	5 57	1 32b	7 20b	6.4	7.3	5.4	6.8	1.9	0.9	.....	2.1	3.6	3.2	25.0	
12	1 43	7 05	1 38b	7 27b	7.1	8.1	6.0	7.6	2.0	0.9	.....	2.2	4.0	3.5	26.0	
13	1 45	7 10	1 40b	7 31b	7.9	9.0	6.6	8.4	2.0	1.0	.....	2.3	4.5	3.9	25.0	
14	1 55	7 56	1 55b	8 13b	10.8	13.0	8.3	12.0	2.0	1.2	.....	2.5	6.5	6.0	24.0	
15	1 53	7 56	1 49b	8 13b	9.9	12.0	7.7	11.2	2.6	1.1	.....	2.6	6.0	5.5	24.0	
16	1 55	7 58	1 51b	8 16b	9.7	11.7	8.1	10.8	2.6	1.1	.....	2.6	5.5	4.8	23.0	
17	1 55	7 58	1 51b	8 15b	10.8	13.0	8.3	12.2	2.7	1.1	.....	2.7	6.5	6.0	22.5	
18	1 57	7 56	1 53b	7 53b	10.6	12.0	8.9	11.2	2.8	1.1	.....	2.7	6.0	5.2	23.0	
19	1 56	7 59	1 52b	8 15b	11.6	14.0	9.0	13.0	2.8	1.1	.....	2.7	7.0	6.4	22.0	
20	1 59	8 05	1 55b	8 21b	12.3	14.0	10.3	12.9	3.0	1.2	.....	2.9	7.0	6.1	22.0	
21	2 23	8 30	2 20b	8 45b	15.0	17.0	12.6	15.7	3.3	1.3	.....	3.2	8.5	7.4	21.0	
22	2 34	10 00	2 30b	10 17b	10.6	12.0	8.9	11.2	2.8	1.1	.....	2.7	6.0	5.1	19.5	
23	2 37	8 43	2 34b	8 58b	15.0	17.0	12.6	15.7	3.3	1.3	.....	3.2	8.5	7.4	20.5	
24	3 17	9 32	3 14b	9 47b	14.1	17.0	10.9	15.8	3.3	1.3	.....	3.2	8.5	7.7	19.5	
25	3 25	9 41	3 22b	9 56b	15.4	17.5	12.9	16.1	3.3	1.4	.....	3.3	8.8	7.6	19.5	
26	3 51	10 10	3 48b	10 25b	14.6	17.5	11.2	16.2	3.3	1.4	.....	3.3	8.8	7.9	19.5	
27	4 54	11 17	4 51b	11 31b	15.9	18.0	13.3	16.6	3.4	1.4	.....	3.3	9.0	7.9	19.0	
28	5 12	11 36	5 09b	11 50b	15.4	18.5	11.9	17.1	3.4	1.4	.....	3.3	9.2	8.4	19.0	
29	5 09	12 00	5 06b	12 14b	16.8	19.0	14.1	17.5	3.5	1.4	.....	3.4	9.5	8.3	18.0	
30	5 26	12 19	5 23b	0 08a	14.5	17.5	11.2	16.2	3.3	1.4	.....	3.4	8.8	8.0	18.0	
31	5 49	0 29	5 46b	0 44a	15.5	17.6	13.0	16.2	3.4	1.4	.....	3.3	8.8	7.7	18.0	
32	6 04	0 52	6 02b	1 06a	18.1	14.9	10.9	13.6	3.0	1.3	17 43	3.0	7.4	6.4	17.5	
33	6 38	1 26	6 35b	1 42a	14.1	17.0	10.9	15.7	3.2	1.3	.....	2.8	8.5	7.7	17.5	
34	6 49	1 43	6 45b	2 00a	13.7	16.5	10.6	15.3	3.1	1.2	.....	2.8	8.2	7.4	17.5	
35	7 33	2 50	7 29b	3 08a	12.5	15.0	9.6	14.0	3.0	1.2	.....	2.6	7.5	6.8	17.0	
36	7 43	3 01	7 39b	3 21a	12.1	14.5	9.3	13.6	3.0	1.1	.....	2.4	7.2	6.6	17.0	
37	8 21	4 08	8 16b	4 29a	7.6	8.6	6.4	8.1	2.4	1.0	.....	2.3	4.3	3.7	16.5	
38	8 44	4 38	8 38b	5 03a	5.3	6.0	4.4	5.7	2.0	0.8	.....	1.9	3.0	2.6	16.5	
39	9 41	5 39	9 35b	6 06a	2.8	3.2	2.3	3.1	1.4	0.6	.....	1.4	1.6	1.4	16.5	
40	10 12	6 21	10 03b	7 01a	2.2	2.5	1.8	2.5	1.3	0.5	.....	1.2	1.2	1.1	16.5	
41	10 44	7 02	10 32b	7 55a	1.1	1.3	0.9	1.3	0.9	0.4	.....	0.9	0.6	0.5	16.0	
42	2 09	7 30	1 40b	7 34b	4.1	5.0	3.1	4.7	1.4	0.3	.....	1.4	2.5	2.2	25.5	
43	1 29	7 00	1 03b	7 08b	3.5	4.5	2.8	4.1	1.4	0.3	.....	1.4	2.2	2.0	25.0	
44	1 54	7 33	1 26b	7 37b	3.6	4.7	2.3	4.2	1.5	0.3	.....	1.5	2.4	2.0	24.0	
45	2 19	8 07	1 52b	8 11b	3.7	4.8	2.4	4.3	1.5	0.3	.....	1.5	2.4	2.1	24.5	
46	2 28	8 23	2 05b	8 26b	6.6	8.0	4.9	7.3	1.7	0.3	.....	1.7	4.0	3.4	23.5	
47	3 28	9 34	3 09b	9 37b	8.3	10.0	6.1	9.1	2.0	0.3	.....	2.0	5.0	4.3	22.5	
48	2 38	8 32	2 18b	8 35b	7.4	9.0	5.5	8.2	1.9	0.3	.....	1.9	4.5	3.8	23.0	
49	2 29	8 55	2 06b	8 58b	4.9	6.3	3.2	5.6	1.7	0.3	.....	1.7	3.2	2.6	23.0	
50	2 14	8 40	1 49b	8 43b	4.2	5.4	2.7	4.8	1.6	0.3	.....	1.6	2.7	2.2	23.0	
51	1 59	8 25	1 29b	8 29b	3.1	4.0	2.0	3.7	1.3	0.3	.....	1.3	2.0	1.7	24.0	
52	3 14	9 55	2 37b	10 00b	1.9	2.4	1.2	2.2	1.1	0.4	.....	1.1	1.2	1.1	23.5	
53	4 50	11 34	4 13b	11 39b	1.8	2.3	1.2	2.2	0.9	0.5	.....	1.0	1.2	1.1	23.5	
54	5 50	0 10	5 17b	0 14a	2.2	2.8	1.4	2.7	0.9	0.6	.....	1.1	1.4	1.3	22.5	
55	7 30	1 50	6 57b	1 54a	2.2	2.8	1.4	2.7	0.9	0.9	.....	1.1	1.4	1.4	22.0	
56	9 05	3 25	8 36b	3 29a	3.2	4.2	2.1	3.8	0.6	1.0	.....	1.4	2.1	2.0	22.5	
57	10 09	4 01	9 41b	4 05a	3.3	4.0	2.5	4.0	0.6	1.4	.....	1.4	2.0	2.1	22.5	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
NORTH AMERICA (EAST COAST)—Continued.												
PRINCE EDWARD ISLAND												
Gulf of St. Lawrence—Continued.												
		North.	West.				Time meridian, 60° W.		Mean Low Water Springs.			
		c /	o /	h. m.			h. m.	h. m.	feet.	feet.		
1	North Point Light.....	47 04	68 59	4 16	Halifax.....	51	+ 9 13	+ 9 16	-2.6	-0.2	0.45	
2	Alberton.....	46 48	64 03	4 16	Halifax.....	51	+10 36	+10 39	-2.6	-0.2	0.42	
3	Richmond Harbor.....	46 34	63 45	4 15	Halifax.....	51	+10 43	+10 46	-3.2	-0.2	0.33	
4	Grand Rustico Light.....	46 28	63 17	4 13	Halifax.....	51	+10 38	+10 41	-3.4	-0.2	0.28	
5	St. Peters Harbor Light.....	46 26	62 45	4 11	Halifax.....	51	+10 59	+11 02	-3.6	-0.4	0.23	
6	East Point Light.....	46 27	61 58	4 08	Halifax.....	51	+ 0 37	+ 0 28	-3.5	-0.3	0.26	
7	Souris.....	46 20	62 17	4 09	Halifax.....	51	+ 0 57	+ 0 18	-1.9	-0.1	0.59	
8	Georgetown Harbor Light.....	46 10	62 31	4 10	Halifax.....	51	+ 1 22	+ 0 50	-2.1	0.0	0.54	
9	Cape Bear Light.....	46 01	62 27	4 10	Halifax.....	51	+ 1 17	+ 0 33	-1.0	0.0	0.75	
10	Charlottetown.....	46 12	63 07	4 12	Halifax.....	51	+ 2 46	+ 2 21	+0.9	+0.3	1.15	
11	Hillsboro River Head.....	46 23	62 49	4 11	Halifax.....	51	+ 3 45	+ 2 47	+3.2	+0.6	1.62	
12	Crapaud Light.....	46 13	63 29	4 14	Halifax.....	51	+ 2 06	+ 2 14	+0.9	+0.3	1.15	
13	Summerside, Bedeque Bay.....	46 24	63 47	4 15	Halifax.....	51	+ 3 04	+ 2 48	+0.2	+0.2	1.01	
14	Minimegash Light.....	46 58	64 14	4 17	Halifax.....	51	+ 9 54	+10 02	-2.6	-0.2	0.45	
ISLANDS.												
Gulf of St. Lawrence.												
15	St. Paul Island, Northeast Light.....	47 14	60 08	4 01	Halifax.....	51	+ 0 44	+ 0 13	-2.3	-0.1	0.49	
16	Magdalen Islands, Grindstone I'd.....	47 23	61 57	4 08	Halifax.....	51	+ 1 05	+ 0 33	-2.6	-0.2	0.42	
NOVA SCOTIA.												
Gulf of St. Lawrence.												
17	Pugwash Harbor Light.....	45 52	63 40	4 15	Halifax.....	51	+ 2 50	+ 2 18	0.0	+0.2	0.98	
18	Tatamagouche Harbor.....	45 45	63 10	4 13	Halifax.....	51	+ 2 18	+ 1 46	+0.6	+0.2	1.06	
19	Pictou Harbor Light.....	45 41	62 40	4 11	Halifax.....	51	+ 2 14	+ 1 33	-1.2	0.0	0.79	
20	Cape George Light.....	45 53	61 55	4 08	Halifax.....	51	+ 1 29	+ 0 57	-2.2	-0.2	0.51	
21	Pomquet Harbor.....	45 39	61 55	4 08	Halifax.....	51	+ 1 45	+ 1 18	-2.0	0.0	0.56	
CAPE BRETON ISLAND.												
Gulf of St. Lawrence.												
22	Gut of Canso, North Entrance.....	45 42	61 32	4 06	Halifax.....	51	+ 1 44	+ 1 16	-2.0	0.0	0.56	
23	Port Hood Light.....	46 00	61 32	4 06	Halifax.....	51	+ 1 12	+ 0 42	-1.6	0.0	0.63	
24	Cheticum Island Light.....	46 38	61 00	4 04	Halifax.....	51	+ 1 06	+ 0 36	-2.3	0.0	0.49	
25	Cape North.....	47 02	60 23	4 02	Halifax.....	51	+ 0 49	+ 0 19	-2.0	0.0	0.56	
Outer coast.												
26	Neal Harbor.....	46 49	60 20	4 01	Halifax.....	51	+ 0 25	+ 0 25	-0.7	-0.1	0.87	
27	St. Anne Harbor Light.....	46 17	60 32	4 02	Halifax.....	51	+ 0 39	+ 0 39	+0.7	+0.1	1.15	
28	Sydney Harbor Light.....	46 13	60 13	4 01	Halifax.....	51	+ 0 20	+ 0 20	-0.2	0.0	0.96	
29	Menadou Bay.....	45 59	59 48	3 59	Halifax.....	51	+ 0 10	+ 0 10	+0.3	+0.1	1.06	
30	Louisburg Harbor Light.....	45 55	59 57	4 00	Halifax.....	51	- 0 03	- 0 03	-0.2	0.0	0.96	
31	St. Peter Bay Light.....	45 41	60 50	4 03	Halifax.....	51	- 0 30	- 0 30	+0.7	+0.1	1.15	
32	Arichat Harbor Light.....	45 30	61 03	4 04	Halifax.....	51	+ 0 11	+ 0 11	-0.2	0.0	0.96	
NOVA SCOTIA.												
Outer coast.												
33	Gut of Canso, South Entrance.....	45 31	61 15	4 05	Halifax.....	51	+ 0 22	+ 0 22	+0.4	0.0	1.06	
34	Guysboro Light.....	45 23	61 29	4 06	Halifax.....	51	+ 0 23	+ 0 23	+1.0	+0.2	1.22	
35	Canso Harbor Light.....	45 21	60 59	4 04	Halifax.....	51	- 0 01	- 0 01	+1.1	+0.1	1.24	
36	Whitehaven.....	45 12	61 08	4 05	Halifax.....	51	+ 0 02	+ 0 02	+1.2	+0.2	1.27	
37	Country Harbor, Island Harbor.....	45 10	61 41	4 07	Halifax.....	51	- 0 16	- 0 16	+1.1	+0.1	1.24	
38	Liscomb Harbor Light.....	44 59	61 58	4 08	Halifax.....	51	+ 0 05	+ 0 05	+1.1	+0.1	1.24	
39	Sheet Harbor.....	44 53	62 31	4 10	Halifax.....	51	+ 0 13	+ 0 13	+1.2	0.0	1.25	
40	Ship Harbor.....	44 46	62 48	4 11	Halifax.....	51	+ 0 02	+ 0 02	+1.1	+0.1	1.24	
41	Jedore Harbor.....	44 42	63 01	4 12	Halifax.....	51	- 0 06	- 0 06	+1.0	+0.2	1.22	
42	HALIFAX.....	44 40	63 35	4 14	Halifax.....	51	0 00	0 00	0.0	0.0	1.00	
43	Sable Island, north side.....	43 57	59 55	4 00	Halifax.....	51	- 0 33	- 0 33	-1.1	-0.1	0.77	
44	Sable Island, south side.....	43 55	60 00	4 00	Halifax.....	51	- 1 33	- 1 33	-1.0	-0.2	0.80	
45	Blind Bay.....	44 28	63 50	4 15	Halifax.....	51	- 0 03	- 0 03	+2.1	+0.3	1.43	
46	St. Margaret Bay.....	44 35	63 58	4 16	Halifax.....	51	0 00	0 00	+1.8	+0.2	1.36	
47	Mahone Bay.....	44 28	64 17	4 17	Halifax.....	51	- 0 01	- 0 01	+2.1	+0.3	1.43	
48	Lunenburg.....	44 23	64 18	4 17	Halifax.....	51	+ 0 08	+ 0 08	+1.6	+0.3	1.33	
49	Port Medway.....	44 08	64 35	4 18	Halifax.....	51	+ 0 01	+ 0 01	+2.4	+0.4	1.50	
50	Liverpool Bay.....	44 02	64 42	4 19	Halifax.....	51	+ 0 06	+ 0 06	+2.5	+0.3	1.52	
51	Port Mouton.....	43 56	64 49	4 19	Halifax.....	51	+ 0 20	+ 0 20	+2.1	+0.3	1.43	
52	Port Ebert.....	43 48	64 56	4 20	Halifax.....	51	+ 0 18	+ 0 18	+2.4	+0.2	1.50	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn.).	Spring (Sg.).	Neap (Np.).	Great tropic (Gc.).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West. °</i>	
1	4 19	11 00	3 42b	11 05b	1.9	2.4	1.2	2.2	0.9	0.4	.....	1.1	1.2	1.2	23.0	
2	5 42	12 23	5 05b	0 03a	1.9	2.4	1.2	2.2	0.8	0.4	.....	1.1	1.2	1.2	23.0	
3	5 50	0 06	5 06b	0 12a	1.4	1.8	0.9	1.8	0.6	0.5	.....	0.9	0.9	1.0	22.5	
4	5 47	0 03	5 06b	0 09a	1.2	1.6	0.8	1.5	0.6	0.6	.....	0.8	0.8	0.9	23.0	
5	6 10	0 26	5 17b	0 32a	1.0	1.3	0.6	1.3	0.6	0.6	.....	0.8	0.6	0.8	23.5	
6	8 16	2 20	7 28b	2 26a	1.1	1.4	0.7	1.4	0.2	0.8	.....	0.8	0.7	1.0	24.0	
7	8 35	2 09	8 03b	2 13a	2.5	3.2	1.6	3.0	0.2	1.2	.....	1.2	1.6	1.7	24.0	
8	8 59	2 40	8 25b	2 45a	2.3	3.0	1.5	2.8	0.3	1.2	.....	1.2	1.5	1.6	24.0	
9	8 54	2 23	8 25b	2 27a	3.2	4.2	2.1	3.8	0.4	1.4	.....	1.4	2.1	2.2	23.0	
10	10 21	4 09	9 58b	4 12a	4.9	6.4	3.2	5.5	0.8	1.4	.....	1.7	3.2	3.0	23.0	
11	11 21	4 36	11 02b	4 39a	6.9	9.0	4.5	7.7	1.4	1.6	.....	2.0	4.5	4.0	23.0	
12	9 39	4 00	9 16b	4 03a	4.9	6.4	3.2	5.6	1.4	1.4	.....	1.7	3.2	2.9	23.5	
13	10 36	4 33	10 12b	1 36a	4.3	5.6	2.8	4.9	1.4	0.5	.....	1.6	2.8	2.8	22.5	
14	5 00	11 45	4 23b	11 50b	1.9	2.4	1.2	2.2	1.0	0.5	.....	1.1	1.2	1.1	23.0	
15	8 32	2 12	7 55b	2 16a	2.1	2.7	1.4	2.6	0.1	1.1	15 04	1.1	1.4	1.5	26.0	
16	8 45	2 25	8 08b	2 30a	1.8	2.3	1.2	2.2	0.1	1.0	.....	1.0	1.2	1.3	25.0	
17	10 22	4 03	9 57b	4 06a	4.2	5.4	2.7	4.8	0.5	1.5	.....	1.6	2.7	2.8	22.0	
18	9 52	3 33	9 29b	3 36a	4.6	6.0	3.0	5.2	0.3	1.5	.....	1.6	3.0	3.0	22.0	
19	9 50	3 22	9 22b	3 26a	3.0	3.9	2.0	3.5	0.3	1.3	.....	1.3	2.0	2.0	22.5	
20	9 08	2 49	8 36b	2 53a	2.2	2.8	1.4	2.7	0.2	1.1	.....	1.1	1.4	1.6	23.0	
21	9 25	3 09	8 52b	3 13a	2.4	3.1	1.6	2.9	0.2	1.2	.....	1.2	1.6	1.7	23.0	
22	9 26	3 10	8 53b	3 14a	2.4	3.1	1.6	2.9	0.2	1.2	.....	1.2	1.6	1.7	23.0	
23	8 53	2 36	8 21b	2 40a	2.7	3.5	1.8	3.2	0.2	1.3	.....	1.3	1.8	1.9	23.5	
24	8 50	2 32	8 16b	2 37a	2.1	2.7	1.4	2.6	0.2	1.1	.....	1.1	1.4	1.5	24.5	
25	8 35	2 17	8 02b	2 21a	2.4	3.1	1.6	2.9	0.2	1.2	.....	1.2	1.6	1.7	25.5	
26	8 11	2 24	7 46a	2 29b	3.7	4.5	2.8	4.1	0.5	1.0	.....	1.1	2.2	2.8	26.0	
27	8 25	2 37	8 14a	2 43b	4.9	6.0	3.7	5.3	0.5	1.0	.....	1.1	3.0	2.8	26.5	
28	8 06	2 19	7 58a	2 24b	4.1	5.0	3.1	4.4	0.5	0.9	.....	1.0	2.5	2.8	24.5	
29	8 00	2 11	7 46a	2 18b	4.5	5.5	3.4	4.8	0.5	0.9	.....	1.0	2.8	2.5	24.5	
30	7 45	1 57	7 31a	2 04b	4.1	5.0	3.1	4.4	0.5	0.9	.....	1.0	2.5	2.8	24.5	
31	7 15	1 27	7 02a	1 33b	4.9	6.0	3.7	5.3	0.5	1.0	.....	1.1	3.0	2.8	24.0	
32	7 55	2 07	7 41a	2 14b	4.1	5.0	3.1	4.4	0.5	0.9	.....	1.0	2.5	2.8	23.0	
33	8 05	2 17	7 54a	2 23b	4.6	5.6	3.4	5.0	0.5	0.9	.....	1.0	2.8	2.6	23.5	
34	8 05	2 17	7 57a	2 23b	5.2	6.4	3.9	5.6	0.5	1.0	.....	1.1	3.2	3.0	23.0	
35	7 43	1 55	7 31a	2 01b	5.3	6.5	4.0	5.7	0.5	1.0	.....	1.1	3.2	3.0	23.0	
36	7 45	1 57	7 33a	2 03b	5.4	6.6	4.1	5.8	0.5	1.0	.....	1.1	3.3	3.0	23.0	
37	7 25	1 37	7 13a	1 43b	5.3	6.5	4.0	5.7	0.5	1.0	.....	1.1	3.2	3.0	22.5	
38	7 45	1 57	7 33a	2 03b	5.3	6.5	4.0	5.7	0.5	1.0	.....	1.1	3.2	3.0	22.0	
39	7 50	2 03	7 38a	2 09b	5.4	6.5	4.0	5.8	0.5	1.0	.....	1.1	3.2	3.0	21.5	
40	7 39	1 51	7 27a	1 57b	5.3	6.5	4.0	5.7	0.5	1.0	.....	1.1	3.2	3.0	21.5	
41	7 30	1 42	7 18a	1 48b	5.2	6.4	4.0	5.7	0.5	1.0	.....	1.1	3.2	3.0	21.0	
42	7 33	1 46	7 21a	1 52b	4.3	5.2	3.2	4.7	0.5	1.0	8 20	1.0	2.6	2.6	21.0	
43	7 15	1 27	6 59a	1 35b	3.3	4.0	2.5	3.6	0.4	0.8	.....	0.9	2.0	1.9	22.0	
44	6 15	0 27	6 59a	0 35b	3.4	4.1	2.6	3.7	0.4	0.8	.....	0.9	2.0	1.9	22.0	
45	7 30	1 42	7 19a	1 48b	6.1	7.5	4.6	6.5	0.6	1.1	.....	1.2	3.8	3.4	20.0	
46	7 32	1 44	7 20a	1 50b	5.8	7.1	4.4	6.2	0.6	1.1	.....	1.2	3.6	3.2	20.0	
47	7 30	1 42	7 19a	1 48b	6.1	7.5	4.6	6.5	0.6	1.1	.....	1.2	3.8	3.4	20.0	
48	7 39	1 51	7 27a	1 57b	5.7	7.0	4.3	6.1	0.6	1.1	.....	1.2	3.5	3.2	20.0	
49	7 31	1 43	7 21a	1 48b	6.4	7.9	4.8	6.8	0.6	1.1	.....	1.2	4.0	3.6	19.5	
50	7 35	1 47	7 24a	1 52b	6.5	8.0	4.9	6.9	0.6	1.1	.....	1.2	4.0	3.6	19.0	
51	7 49	2 01	7 38a	2 07b	6.1	7.5	4.6	6.5	0.6	1.1	.....	1.2	3.8	3.4	19.0	
52	7 46	1 58	7 36a	2 04b	6.4	7.8	4.8	6.8	0.6	1.1	.....	1.2	3.9	3.6	19.0	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
NOVA SCOTIA—continued.											
Outer coast—Continued.											
		North.	West.				Time Meridian, 60° W.		Mean Low Water Springs.		
		o /	o /	h. m.			h. m.	h. m.	feet.	feet.	
1	Rugged Island Harbor .....	43 42	65 06	4 20	Halifax .....	51	+0 10	+0 10	+ 2.1	+0.3	1.43
2	Shelburne .....	43 45	65 19	4 21	Halifax .....	51	+0 22	+0 22	+ 1.6	+0.2	1.33
3	Negro Harbor .....	43 34	65 25	4 22	Halifax .....	51	+0 23	+0 23	+ 1.6	+0.2	1.33
4	Barrington .....	43 33	65 34	4 22	Halifax .....	51	+1 22	+1 22	+ 5.2	+0.6	2.09
5	Cape Sable Light .....	43 28	65 37	4 22	Halifax .....	51	+1 17	+1 17	+ 5.3	+0.6	2.12
Bay of Fundy.											
6	Seal Island Light .....	43 24	66 01	4 24	St. John, N. B. ....	55	-1 33	-1 36	-10.4	-0.6	0.54
7	Pubnico .....	43 38	65 47	4 23	St. John, N. B. ....	55	-1 58	-1 56	-11.1	-0.7	0.50
8	Argyle .....	43 42	65 50	4 23	St. John, N. B. ....	55	-1 56	-1 49	-10.4	-0.6	0.54
9	Yarmouth .....	43 50	66 08	4 25	St. John, N. B. ....	55	-1 06	-1 16	- 7.4	-0.4	0.57
10	Grand Passage, St. Mary Bay .....	44 15	66 20	4 25	St. John, N. B. ....	55	-0 30	-0 28	- 2.8	-0.2	0.87
11	Petite Passage, St. Mary Bay .....	44 23	66 12	4 25	St. John, N. B. ....	55	-0 33	-0 27	- 1.7	-0.1	0.92
12	Weymouth, St. Mary Bay .....	44 27	66 01	4 24	St. John, N. B. ....	55	-0 25	-0 21	+ 0.2	0.0	1.01
13	Digby Pier .....	44 41	65 46	4 23	St. John, N. B. ....	55	-0 17	-0 16	+ 3.5	+0.3	1.15
14	Annapolis .....	44 45	65 30	4 22	St. John, N. B. ....	55	+0 07	+0 11	+ 4.6	+0.4	1.20
15	Port George .....	45 00	65 09	4 21	St. John, N. B. ....	55	-0 06	+0 12	+ 7.6	+0.6	1.33
16	Isle Haute Light .....	45 15	65 01	4 20	St. John, N. B. ....	55	-0 03	+0 26	+ 8.6	+0.6	1.38
17	Black Rock Light .....	45 10	64 46	4 19	St. John, N. B. ....	55	+0 04	+0 33	+11.4	+0.8	1.51
18	Spencer Anchorage .....	45 20	64 42	4 19	St. John, N. B. ....	55	+0 18	+0 58	+14.2	+1.0	1.63
19	Parrsboro, Minas Basin .....	45 23	64 19	4 17	St. John, N. B. ....	55	+0 54	+1 31	+18.0	+1.2	1.80
20	Horton Bluff, Minas Basin .....	46 07	64 13	4 17	St. John, N. B. ....	55	+1 06	+1 50	+22.6	+1.6	2.01
21	Noel Bay, Minas Basin .....	46 19	63 45	4 15	St. John, N. B. ....	55	+1 15	+1 59	+25.0	+1.6	2.11
22	Spicer Cove .....	45 25	64 54	4 20	St. John, N. B. ....	55	+0 13	+0 57	+12.2	+1.0	1.54
NEW BRUNSWICK—continued.											
Bay of Fundy.											
23	Sackville .....	45 53	64 22	4 17	St. John, N. B. ....	55	+0 31	+1 40	+20.0	+1.4	1.89
24	Grindstone Island Light .....	45 43	64 27	4 18	St. John, N. B. ....	55	+0 22	+1 21	+16.1	+1.1	1.72
25	Folly Point .....	45 52	64 34	4 18	St. John, N. B. ....	55	+0 25	+1 20	+19.8	+1.4	1.93
26	Monckton Railway .....	46 06	64 47	4 19	St. John, N. B. ....	55	+0 47	+1 51	+21.8	+1.4	1.97
27	Quaco .....	45 21	65 32	4 22	St. John, N. B. ....	55	+0 13	+0 57	+ 5.8	+0.4	1.26
28	St. John Harbor .....	45 14	66 04	4 24	St. John, N. B. ....	55	0 00	0 00	0.0	0.0	1.00
29	Lepreau Bay .....	45 07	66 31	4 25	St. John, N. B. ....	55	0 00	+0 04	+ 0.6	0.0	1.03
30	Fish Head, Grand Manan Island .....	44 47	66 44	4 27	St. John, N. B. ....	55	-0 02	+0 26	- 1.3	-0.1	0.94
31	Seal Cove, Grand Manan Island .....	44 38	66 50	4 27	St. John, N. B. ....	55	-0 21	+0 01	- 3.6	-0.2	0.84
32	Machias Seal Island Light .....	44 30	67 06	4 28	St. John, N. B. ....	55	-0 07	+0 07	- 5.5	-0.3	0.75
NEW BRUNSWICK AND MAINE.											
Pussamaquoddy Bay.											
							Time meridian, 75° W.		Mean Low Water.		
33	Lubec, Me. ....	44 52	66 59	4 28	St. John, N. B. ....	55	-1 00	-0 52	- 4.0	-1.4	0.85
34	Deep Cove, Cobscook Bay, Me. ....	44 54	67 01	4 28	St. John, N. B. ....	55	-0 44	-0 32	- 3.0	-1.4	0.93
35	Federal Harbor, Cobscook B., Me. ....	44 52	67 04	4 28	St. John, N. B. ....	55	-0 40	-0 28	- 3.4	-1.4	0.91
36	Welchpool, Campobello I., N. B. ....	44 53	66 57	4 28	St. John, N. B. ....	55	-0 57	-0 51	- 2.0	-1.4	0.96
37	Eastport, Me. ....	44 54	66 59	4 28	St. John, N. B. ....	55	-0 55	-0 50	- 4.2	-1.4	0.87
38	Gleason Cove, Me. ....	44 58	67 03	4 28	St. John, N. B. ....	55	-0 50	-0 42	- 4.0	-1.4	0.88
39	L'Etang, N. B. ....	45 04	66 50	4 27	St. John, N. B. ....	55	-0 58	-0 54	- 2.0	-1.4	0.97
St. Croix River.											
40	St. Andrew, N. B. ....	45 04	67 03	4 28	St. John, N. B. ....	55	-0 46	-0 37	- 0.7	-1.5	1.04
41	Robbinston, Me. ....	45 05	67 06	4 28	St. John, N. B. ....	55	-0 46	-0 36	- 2.6	-1.4	0.95
42	Dochet Island Light, Me. ....	45 08	67 08	4 29	St. John, N. B. ....	55	-0 39	-0 29	- 2.4	-1.4	0.95
43	Dufferin (The Ledge), N. B. ....	45 10	67 12	4 29	St. John, N. B. ....	55	-0 34	-0 23	- 2.4	-1.4	0.96
44	Calais, Me. ....	45 11	67 17	4 29	St. John, N. B. ....	55	-0 27	-0 14	- 2.0	-1.4	0.97
MAINE—continued.											
45	West Quoddy Head .....	44 49	66 57	4 28	St. John, N. B. ....	55	-1 09	-1 03	- 7.2	-1.4	0.73
46	Cutler, Little River .....	44 39	67 13	4 29	St. John, N. B. ....	55	-1 20	-1 16	- 8.3	-1.5	0.67
47	Starboard Island, Machias Bay .....	44 36	67 23	4 30	St. John, N. B. ....	55	-1 18	-1 13	- 9.9	-1.5	0.60
48	Machiasport, Machias Bay .....	44 42	67 24	4 30	St. John, N. B. ....	55	-1 00	-0 54	- 8.8	-1.4	0.65
49	Little Kennebec Bay .....	44 37	67 26	4 30	St. John, N. B. ....	55	-1 16	-1 11	- 9.6	-1.4	0.61
50	Rogue I Harbor, Englishman Bay .....	44 34	67 31	4 30	Boston .....	63	-0 53	-0 47	+ 2.7	0.0	1.23
51	Moose Peak Light .....	44 28	67 32	4 30	Boston .....	63	-1 09	-1 08	+ 2.4	0.0	1.25
52	Jonesport .....	44 32	67 36	4 30	Boston .....	63	-0 44	-0 43	+ 2.1	0.0	1.22
53	Nash Island Light .....	44 28	67 45	4 31	Boston .....	63	-1 00	-1 00	+ 1.4	0.0	1.15
54	Addison Point, Pleasant River .....	44 37	67 45	4 31	Boston .....	63	-0 26	-0 26	+ 1.7	0.0	1.13
55	Trafton Island, Narraguagus Bay .....	44 29	67 50	4 31	Boston .....	63	-0 57	-1 07	+ 1.6	0.0	1.17
56	Millbridge, Narraguagus Bay .....	44 32	67 53	4 32	Boston .....	63	-0 45	-0 45	+ 1.7	0.0	1.18
57	Pigeon Hill Bay .....	44 27	67 52	4 31	Boston .....	63	-0 56	-0 56	+ 1.6	0.0	1.12
58	Dyer Bay .....	44 27	67 55	4 32	Boston .....	63	-0 51	-0 51	+ 1.3	0.0	1.14
59	Indian Harbor, Gouldsboro Bay .....	44 24	67 58	4 32	Boston .....	63	-0 55	-0 55	+ 0.9	0.0	1.09

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.												
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.													
	HWI.	LWI.	HHWI.	LLWI.																							
	h. m.	h. m.	h. m.	h. m.	feet.	feet.	feet.	feet.	feet.	feet.	h. m.	feet.	feet.	feet.	West. °												
1	7 38	1 50	7 27a	1 56b	6.1	7.5	4.6	6.5	0.6	1.1	.....	1.2	3.8	3.4	19.0												
2	7 49	2 01	7 37a	2 07b	5.7	7.0	4.3	6.1	0.6	1.1	.....	1.2	3.6	3.2	18.5												
3	7 49	2 01	7 37a	2 07b	5.7	7.0	4.3	6.1	0.6	1.1	.....	1.2	3.6	3.2	18.0												
4	8 48	3 00	8 41a	3 04b	9.0	11.0	6.7	9.5	0.7	1.3	.....	1.4	6.5	4.9	18.0												
5	8 42	2 55	8 33a	3 00b	9.1	11.0	6.8	9.6	0.6	1.1	.....	1.3	5.5	3.8	18.0												
6	9 35	3 23	9 30a	3 29b	11.2	12.8	9.5	11.0	1.0	0.9	.....	1.3	6.4	5.7	17.5												
7	9 11	3 04	9 08a	3 10b	10.5	12.0	8.9	10.3	1.0	0.8	.....	1.2	6.0	5.1	18.0												
8	9 13	3 42	9 08a	3 17b	11.2	12.8	9.5	11.0	1.0	0.9	.....	1.3	6.4	5.7	18.0												
9	10 01	3 42	9 56a	3 47b	14.0	16.0	11.8	13.8	1.1	1.0	.....	1.4	8.0	7.1	18.0												
10	10 37	4 30	10 33a	4 34b	18.2	20.8	15.4	17.9	1.3	1.1	.....	1.6	10.4	9.2	18.5												
11	10 34	4 31	10 30a	4 35b	19.3	22.0	16.3	19.0	1.3	1.1	.....	1.7	11.0	9.7	18.5												
12	10 43	4 38	10 38a	4 42b	21.1	24.1	17.9	20.7	1.4	1.2	.....	1.8	12.0	10.6	19.0												
13	10 52	4 44	10 48a	4 40b	24.1	27.5	20.4	23.6	1.5	1.3	.....	1.9	13.8	12.1	19.0												
14	11 17	5 12	11 14a	5 16b	25.1	28.7	21.2	24.7	1.5	1.3	.....	1.9	14.4	12.6	19.5												
15	11 05	5 14	11 01a	5 14b	27.8	32.0	23.3	26.6	1.5	1.3	.....	1.9	16.0	14.2	20.0												
16	11 09	5 29	11 06a	5 32b	28.9	33.0	24.4	28.4	1.6	1.4	.....	2.0	16.5	14.5	20.5												
17	11 17	5 42	11 14a	5 45b	31.5	36.0	26.6	31.0	1.7	1.5	.....	2.2	18.0	15.7	20.5												
18	11 31	6 02	11 26a	6 03b	34.0	39.0	28.4	35.0	1.9	1.6	.....	2.3	19.5	17.4	21.0												
19	12 09	6 37	11 41a	6 34b	37.7	43.0	31.9	37.1	1.9	1.6	.....	2.3	21.5	18.9	21.0												
20	12 21	6 56	12 18a	6 56b	42.0	48.0	35.5	41.4	2.0	1.7	.....	2.5	24.0	21.1	21.5												
21	0 07	7 07	0 04b	7 10b	44.2	50.5	37.4	43.6	2.0	1.7	.....	2.5	25.2	22.2	21.0												
22	11 25	6 00	11 22a	6 03b	32.2	37.0	26.9	33.2	2.0	1.7	.....	2.5	18.5	16.5	21.0												
23	11 46	6 46	11 53a	6 49b	39.6	45.2	33.5	39.0	1.9	1.6	.....	2.4	22.6	19.9	22.0												
24	11 36	6 26	11 33a	6 29b	35.9	41.0	30.4	35.3	1.8	1.5	.....	2.3	20.5	18.1	21.5												
25	11 39	6 25	11 36a	6 28b	39.4	45.0	33.3	38.8	1.9	1.6	.....	2.4	22.5	19.8	21.5												
26	12 00	6 56	11 57a	6 58b	41.2	47.0	34.9	40.5	1.9	1.7	.....	2.5	23.5	20.7	21.5												
27	11 23	5 58	11 20a	6 01b	26.3	30.0	22.2	25.8	1.5	1.3	.....	2.0	15.0	13.3	20.0												
28	11 08	4 59	11 04a	5 03b	20.9	23.8	17.6	21.3	1.4	1.4	8 06	1.8	11.9	10.7	19.5												
29	11 06	5 01	11 02a	5 05b	21.5	24.5	18.2	21.0	1.4	1.2	.....	1.8	12.2	10.8	19.0												
30	11 03	5 22	10 59a	5 26b	19.7	22.5	16.7	19.4	1.3	1.1	.....	1.7	11.2	9.8	18.5												
31	10 44	4 57	10 39a	5 02b	17.5	20.0	14.8	17.2	1.3	1.1	.....	1.6	10.0	8.8	18.5												
32	10 57	5 02	10 52a	5 07b	15.7	18.0	13.2	16.3	1.2	1.1	.....	1.6	9.0	8.0	18.0												
33	11 04	5 03	11 00a	5 08b	18.3	20.9	15.4	19.0	1.3	1.2	.....	1.8	9.2	9.5	19.0												
34	11 20	5 23	11 16a	5 27b	19.4	22.3	16.3	20.1	1.3	1.2	.....	1.8	9.7	10.0	19.0												
35	11 24	5 27	11 20a	5 31b	19.0	21.8	16.0	19.7	1.3	1.2	.....	1.8	9.5	9.8	19.0												
36	11 07	5 04	11 03a	5 08b	20.4	23.5	17.0	21.1	1.3	1.2	.....	1.8	10.2	10.3	19.0												
37	11 09	5 05	11 04a	5 09b	18.2	20.7	15.4	18.4	1.4	1.3	8 14	1.7	9.1	9.2	19.0												
38	11 14	5 13	11 10a	5 18b	18.4	21.2	15.5	19.1	1.3	1.2	.....	1.8	9.2	9.5	19.0												
39	11 07	5 02	11 03a	5 06b	20.3	23.3	17.1	21.0	1.4	1.2	.....	1.9	10.2	10.4	19.0												
40	11 18	5 18	11 14a	5 22b	21.7	24.9	18.2	22.5	1.4	1.3	.....	1.9	10.8	11.2	19.0												
41	11 18	5 19	11 14a	5 23b	19.8	22.8	16.6	20.5	1.3	1.2	.....	1.8	9.9	10.2	19.0												
42	11 24	5 25	11 20a	5 29b	19.9	22.9	16.7	20.6	1.3	1.2	.....	1.8	10.0	10.3	19.0												
43	11 29	5 31	11 25a	5 36b	20.0	23.0	16.8	20.7	1.4	1.2	.....	1.9	10.0	10.3	19.0												
44	11 36	5 40	11 32a	5 44b	20.3	23.3	17.1	21.0	1.4	1.2	.....	1.9	10.2	10.4	19.0												
45	10 55	4 52	10 50a	4 57b	15.2	17.5	12.8	15.8	1.2	1.1	.....	1.6	7.6	7.9	19.0												
46	10 43	4 38	10 39a	4 42b	14.1	16.2	11.9	14.7	1.2	1.0	.....	1.5	7.0	7.3	18.5												
47	10 44	4 40	10 39a	4 46b	12.5	14.4	10.5	13.1	1.1	1.0	.....	1.5	6.2	6.5	18.5												
48	11 02	4 59	10 57a	5 04b	13.5	15.5	11.3	14.1	1.1	1.0	.....	1.5	6.8	7.0	18.0												
49	10 46	4 42	10 41a	4 48b	12.8	14.7	10.8	13.4	1.1	1.2	.....	1.5	6.4	6.7	18.0												
50	10 49	4 45	10 44a	4 50b	12.3	14.1	10.3	12.9	1.1	0.9	.....	1.4	6.2	6.4	18.0												
51	10 33	4 24	10 28a	4 30b	12.0	13.8	10.0	12.5	1.0	0.9	.....	1.4	6.0	6.3	18.0												
52	10 58	4 49	10 53a	4 55b	11.7	13.5	9.8	12.2	1.0	0.9	.....	1.4	5.8	6.1	18.0												
53	10 40	4 30	10 34a	4 38b	11.0	12.6	9.2	12.4	1.4	1.1	.....	1.8	5.5	6.1	18.0												
54	11 14	5 04	11 08a	5 12b	11.3	13.0	9.5	12.7	1.4	1.1	.....	1.8	5.6	6.2	18.0												
55	10 43	4 23	10 37a	4 31b	11.2	12.9	9.4	12.6	1.4	1.1	.....	1.8	5.6	6.2	18.0												
56	10 54	4 44	10 48a	4 52b	11.3	13.0	9.5	12.7	1.4	1.1	.....	1.8	5.6	6.2	18.0												
57	10 44	4 34	10 38a	4 42b	11.2	12.9	9.4	12.6	1.4	1.1	.....	1.8	5.6	6.2	17.5												
58	10 48	4 38	10 42a	4 46b	10.9	12.5	9.2	12.3	1.4	1.1	.....	1.7	5.4	6.0	17.5												
59	10 44	4 34	10 38a	4 42b	10.5	12.1	8.9	11.8	1.3	1.1	.....	1.7	5.2	5.8	17.5												



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
NORTH AMERICA (EAST COAST)—Continued.												
MAINE—continued.		North.	West.					Time meridian, 75° W.		Mean Low Water.		
		°	'	h. m.				h. m.	h. m.	feet.	feet.	
1	Gouldsboro Point.....	44 28	67 59	4 32	Boston.....	63	-0 43	-0 43	+1.4	0.0	1.15	
2	Prospect Harbor.....	44 24	68 01	4 32	Boston.....	63	-0 49	-0 50	+1.2	0.0	1.13	
3	Winter Harbor, Frenchman Bay.....	44 23	68 06	4 32	Boston.....	63	-0 47	-0 48	+1.2	0.0	1.13	
4	Eastern Pt. Har., Frenchman Bay.....	44 28	68 11	4 33	Boston.....	63	-0 39	-0 40	+1.6	0.0	1.17	
5	Sullivan, Frenchman Bay.....	44 31	68 12	4 33	Boston.....	63	-0 29	-0 29	+1.9	0.0	1.20	
6	Mount Desert Narrows.....	44 26	68 22	4 33	Boston.....	63	-0 28	-0 28	+1.9	0.0	1.20	
7	Salisbury Cove, Mt. Desert Island.....	44 26	68 17	4 33	Boston.....	63	-0 37	-0 38	+1.7	0.0	1.18	
8	Bar Harbor, Mount Desert Island.....	44 23	68 12	4 33	Boston.....	63	-0 44	-0 45	+1.5	0.0	1.16	
9	Southwest Har., Mt. Desert Island.....	44 16	68 19	4 33	Boston.....	63	-0 44	-0 45	+0.5	0.0	1.05	
10	Somesville, Mount Desert Island.....	44 22	68 20	4 33	Boston.....	63	-0 34	-0 35	+0.4	0.0	1.04	
11	Bass Harbor, Mt. Desert Island.....	44 15	68 21	4 33	Boston.....	63	-0 45	-0 46	+0.4	0.0	1.04	
12	Pretty Marsh Har., Mt. Desert I.....	44 20	68 25	4 34	Boston.....	63	-0 36	-0 37	+0.6	0.0	1.06	
13	Union River, Blue Hill Bay.....	44 30	68 26	4 34	Boston.....	63	-0 26	-0 26	+1.9	0.0	1.20	
14	Blue Hill Harbor, Blue Hill Bay.....	44 24	68 34	4 34	Boston.....	63	-0 30	-0 30	+1.3	0.0	1.14	
15	Allen Cove, Blue Hill Bay.....	44 18	68 32	4 34	Boston.....	63	-0 35	-0 36	+0.7	0.0	1.07	
16	Mackerel Cove, Blue Hill Bay.....	44 10	68 26	4 34	Boston.....	63	-0 43	-0 44	+0.6	0.0	1.06	
17	Naskeag Har., Eggemoggin Reach.....	44 13	68 33	4 34	Boston.....	63	-0 37	-0 41	+0.4	0.0	1.04	
18	Sedgwick, Eggemoggin Reach.....	44 18	68 37	4 34	Boston.....	63	-0 19	-0 23	+0.3	0.0	1.03	
Penobscot Bay.												
19	Matinicus Harbor.....	43 52	68 53	4 36	Boston.....	63	-0 50	-0 54	-0.7	0.0	0.93	
20	Head Harbor, Isle au Haut.....	44 01	68 37	4 34	Boston.....	63	-0 48	-0 52	-0.5	0.0	0.95	
21	Kimball Island.....	44 04	68 39	4 35	Boston.....	63	-0 44	-0 48	-0.3	0.0	0.97	
22	Carvers Harbor, Fox Islands.....	44 03	68 50	4 35	Boston.....	63	-0 41	-0 45	-0.3	0.0	0.97	
23	Iron Point, Fox Islands.....	44 08	68 52	4 35	Boston.....	63	-0 28	-0 32	+0.4	0.0	1.04	
24	Pulpit or North Harbor, Fox Is.....	44 09	68 53	4 36	Boston.....	63	-0 33	-0 36	+0.3	0.0	1.04	
25	Rockland.....	44 06	69 06	4 36	Boston.....	63	-0 26	-0 30	0.0	0.0	1.00	
26	Greens Landing, Deer Isle.....	44 09	68 40	4 35	Boston.....	63	-0 37	-0 41	0.0	0.0	1.00	
27	Oceanville, Deer Isle.....	44 12	68 38	4 35	Boston.....	63	-0 36	-0 40	+0.2	0.0	1.02	
28	Northwest Harbor, Deer Isle.....	44 13	68 41	4 35	Boston.....	63	-0 27	-0 31	+0.1	0.0	1.01	
29	Camden.....	44 12	69 08	4 36	Boston.....	63	-0 22	-0 26	+0.1	0.0	1.01	
30	Castine.....	44 23	68 48	4 35	Boston.....	63	-0 11	-0 14	+0.2	0.0	1.02	
31	Belfast.....	44 25	69 00	4 36	Boston.....	63	0 00	-0 08	+0.6	0.0	1.06	
Penobscot River.												
32	Fort Point.....	44 28	68 49	4 35	Boston.....	63	-0 02	-0 05	+0.5	0.0	1.05	
33	Bucksport.....	44 35	68 49	4 35	Boston.....	63	+0 14	+0 12	+1.0	0.0	1.11	
34	Hampden.....	44 45	68 50	4 35	Boston.....	63	+0 54	+0 58	+2.4	0.0	1.25	
35	Bangor.....	44 49	68 47	4 35	Boston.....	63	+1 12	+1 21	+8.5	0.0	1.37	
Outer coast.												
36	Muscle Ridge Channel.....	44 01	69 05	4 36	Portland.....	59	-0 11	-0 10	+0.5	0.0	1.06	
37	Tennant Harbor.....	43 58	69 12	4 37	Portland.....	59	-0 21	-0 20	+0.5	0.0	1.06	
38	Herring Gut.....	43 56	69 16	4 37	Portland.....	59	-0 19	-0 18	+0.5	0.0	1.06	
39	Thomaston, St. George River.....	44 04	69 11	4 37	Portland.....	59	+0 06	+0 07	+1.1	0.0	1.12	
40	New Harbor, Muscongus Bay.....	43 52	69 29	4 38	Portland.....	59	-0 24	-0 24	+0.4	0.0	1.04	
41	Broad Cove, Medomak River.....	44 02	69 24	4 38	Portland.....	59	-0 06	-0 06	+0.5	0.0	1.06	
42	Waldoboro, Medomak River.....	44 06	69 23	4 38	Portland.....	59	+0 14	+0 15	+1.1	0.0	1.12	
43	Johns Bay.....	43 52	69 32	4 38	Portland.....	59	-0 24	-0 24	+0.5	0.0	1.06	
44	East Boothbay, Damariscotta R.....	43 52	69 35	4 38	Portland.....	59	-0 14	-0 14	+0.1	0.0	1.01	
45	Newcastle, Damariscotta River.....	44 03	69 33	4 38	Portland.....	59	+0 11	+0 12	+0.8	0.0	1.09	
46	Boothbay.....	43 50	69 39	4 39	Portland.....	59	-0 14	-0 14	+0.5	0.0	1.06	
47	Herman Harbor, Sheepscot River.....	43 49	69 43	4 39	Portland.....	59	-0 14	-0 14	+0.6	0.0	1.07	
48	Jewett Cove, Sheepscot River.....	43 52	69 12	4 39	Portland.....	59	-0 08	-0 08	+0.7	0.0	1.07	
49	Wiscasset, Sheepscot River.....	44 00	69 40	4 39	Portland.....	59	+0 10	+0 11	+0.9	0.0	1.10	
50	Hockomoc Bay.....	43 53	69 44	4 39	Portland.....	59	+0 08	+0 09	+0.4	0.0	1.04	
Kennebec River.												
51	Hunniwell Point.....	43 45	69 47	4 39	Portland.....	59	+0 11	+0 08	-0.6	0.0	0.93	
52	Phippsburg.....	43 49	69 48	4 39	Portland.....	59	+0 06	+0 06	-0.3	0.0	0.97	
53	Bath.....	43 55	69 49	4 39	Portland.....	59	+1 00	+1 18	-2.0	0.0	0.78	
54	Pleasant Point.....	43 58	69 52	4 39	Portland.....	59	+2 13	+2 34	-4.2	0.0	0.53	
55	Abagadasset Point.....	44 00	69 49	4 39	Portland.....	59	+2 15	+2 36	-3.3	0.0	0.63	
56	Bowdoinham.....	44 01	69 53	4 40	Portland.....	59	+2 18	+2 47	-2.9	0.0	0.67	
57	Dresden.....	44 05	69 47	4 39	Portland.....	59	+2 42	+3 12	-3.8	0.0	0.57	
58	Gardiner.....	44 14	69 46	4 39	Portland.....	59	+3 25	+4 11	-3.8	0.0	0.57	
59	Hallowell.....	44 17	69 47	4 39	Portland.....	59	+3 51	+5 05	-4.6	0.0	0.48	
60	Augusta.....	44 18	69 46	4 39	Portland.....	59	+4 06	+5 20	-4.6	0.0	0.48	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>
1	10 56	4 46	10 50a	4 54b	11.0	12.6	9.2	12.3	1.4	1.1	.....	1.8	5.5	6.1	17.5
2	10 50	4 39	10 44a	4 47b	10.8	12.4	9.1	12.2	1.4	1.1	.....	1.7	5.4	6.0	17.5
3	10 52	4 41	10 46a	4 49b	10.8	12.4	9.1	12.2	1.4	1.1	.....	1.7	5.4	6.0	17.5
4	10 59	4 48	10 53a	4 56b	11.2	12.9	9.4	12.6	1.4	1.1	.....	1.8	5.6	6.2	17.5
5	11 09	4 59	11 03a	5 07b	11.5	13.2	9.7	12.9	1.4	1.1	.....	1.8	5.8	6.3	17.5
6	11 10	5 00	11 04a	5 08b	11.5	13.2	9.7	12.9	1.4	1.1	.....	1.8	5.8	6.3	17.5
7	11 01	4 50	10 55a	4 58b	11.3	13.0	9.5	12.7	1.4	1.1	.....	1.8	5.6	6.2	17.5
8	10 54	4 43	10 48a	4 51b	11.1	12.8	9.3	12.5	1.4	1.1	.....	1.8	5.6	6.1	17.5
9	10 54	4 43	10 48a	4 51b	11.1	11.6	8.5	11.3	1.3	1.0	.....	1.7	5.0	5.6	17.5
10	11 04	4 53	10 58a	5 01b	10.0	11.5	8.4	11.2	1.3	1.0	.....	1.7	5.0	5.5	17.5
11	10 53	4 42	10 47a	4 50b	10.0	11.5	8.4	11.2	1.3	1.0	.....	1.7	5.0	5.5	17.5
12	11 01	4 50	10 55a	4 58b	10.2	11.7	8.6	11.5	1.3	1.1	.....	1.7	5.1	5.7	17.5
13	11 11	5 01	11 05a	5 09b	11.5	13.2	9.7	12.9	1.4	1.1	.....	1.8	5.8	6.3	17.0
14	11 07	4 57	11 01a	5 05b	10.9	12.5	9.2	12.3	1.4	1.1	.....	1.8	5.4	6.3	17.0
15	11 02	4 51	10 56a	4 59b	10.3	11.8	8.7	11.6	1.3	1.1	.....	1.7	5.2	5.7	17.0
16	10 54	4 43	10 48a	4 51b	10.2	11.7	8.6	11.5	1.3	1.1	.....	1.7	5.1	5.7	17.0
17	11 00	4 46	10 54a	4 54b	10.0	11.5	8.4	11.2	1.3	1.0	.....	1.7	5.0	5.5	17.0
18	11 18	5 04	11 12a	5 12b	9.9	11.4	8.3	11.1	1.3	1.0	.....	1.7	5.0	5.5	17.0
19	10 45	4 31	10 39a	4 39b	8.9	10.2	7.5	10.1	1.2	1.0	.....	1.6	4.4	5.0	16.0
20	10 49	4 35	10 43a	4 43b	9.1	10.5	7.6	10.3	1.2	1.0	.....	1.6	4.6	5.1	17.0
21	10 52	4 38	10 46a	4 46b	9.3	10.7	7.8	10.5	1.3	1.0	.....	1.6	4.6	5.2	17.0
22	10 55	4 41	10 49a	4 49b	9.3	10.7	7.8	10.5	1.3	1.0	.....	1.6	4.6	5.2	16.5
23	11 08	4 54	11 02a	5 02b	10.0	11.5	8.4	11.2	1.3	1.0	.....	1.7	5.0	5.5	16.5
24	11 02	4 49	10 56a	4 57b	9.9	11.4	8.3	11.2	1.3	1.0	8 14	1.7	5.0	5.5	16.0
25	11 09	4 55	11 03a	5 03b	9.6	11.0	8.1	10.8	1.3	1.0	.....	1.6	4.8	5.5	16.0
26	10 59	4 45	10 53a	4 53b	9.6	11.0	8.1	10.8	1.3	1.0	.....	1.6	4.8	5.3	16.5
27	11 00	4 46	10 54a	4 54b	9.8	11.3	8.2	11.0	1.3	1.0	.....	1.7	4.9	5.4	16.5
28	11 09	4 55	11 03a	5 03b	9.7	11.2	8.1	10.9	1.3	1.0	.....	1.6	4.8	5.4	17.0
29	11 13	4 59	11 07a	5 07b	9.7	11.2	8.1	10.9	1.3	1.0	.....	1.6	4.8	5.4	16.5
30	11 25	5 12	11 19a	5 20b	9.8	11.3	8.2	11.0	1.3	1.0	.....	1.7	4.9	5.4	17.0
31	11 35	5 22	11 29a	5 30b	10.2	11.7	8.6	11.5	1.3	1.1	.....	1.7	5.1	5.7	17.0
32	11 34	5 21	11 28a	5 29b	10.1	11.6	8.5	11.3	1.3	1.0	.....	1.7	5.0	5.7	17.0
33	11 50	5 38	11 44a	5 46b	10.6	12.2	8.9	11.9	1.3	1.1	.....	1.7	5.3	5.9	17.0
34	0 05	6 24	0 00b	6 31b	12.0	13.8	10.8	13.2	1.4	1.1	.....	1.8	6.0	6.5	17.0
35	0 23	6 47	0 18b	6 54b	13.1	15.1	11.0	13.4	1.5	1.2	.....	1.9	6.6	7.2	17.0
36	11 05	4 51	10 59a	5 00b	9.4	10.8	7.9	10.6	1.4	1.1	.....	1.8	4.7	5.2	16.0
37	10 54	4 40	10 48a	4 49b	9.4	10.8	7.9	10.6	1.4	1.1	.....	1.8	4.7	5.2	16.0
38	10 56	4 42	10 50a	4 51b	9.4	10.8	7.9	10.6	1.4	1.1	.....	1.8	4.7	5.2	16.0
39	11 21	5 07	11 15a	5 16b	10.0	11.5	8.4	11.2	1.5	1.2	.....	1.9	5.0	5.6	16.0
40	10 50	4 35	10 44a	4 44b	9.3	10.7	7.8	10.5	1.4	1.1	.....	1.8	4.6	5.2	15.5
41	11 08	4 53	11 02a	5 02b	9.4	10.8	7.9	10.6	1.4	1.1	.....	1.8	4.7	5.3	16.0
42	11 28	5 14	11 22a	5 23b	10.0	11.5	8.4	11.2	1.5	1.1	.....	1.9	5.0	5.5	16.0
43	10 50	4 35	10 44a	4 44b	9.4	10.8	7.9	10.6	1.4	1.1	.....	1.8	4.7	5.3	15.5
44	11 00	4 45	10 53a	4 53b	9.0	10.4	7.6	10.2	1.4	1.1	.....	1.8	4.5	4.7	15.5
45	11 25	5 11	11 19a	5 20b	9.7	11.2	8.1	10.9	1.5	1.2	.....	1.8	4.8	5.5	15.5
46	10 59	4 41	10 53a	4 53b	9.4	10.8	7.9	10.6	1.4	1.1	.....	1.8	4.7	5.5	15.5
47	10 59	4 44	10 53a	4 53b	9.5	10.9	8.0	10.7	1.4	1.1	.....	1.8	4.8	5.3	15.5
48	11 05	4 50	10 59a	4 59b	9.6	11.0	8.1	10.8	1.4	1.1	.....	1.8	4.8	5.3	15.5
49	11 23	5 09	11 17a	5 18b	9.8	11.2	8.2	11.0	1.5	1.2	.....	1.8	4.9	5.5	15.5
50	11 21	5 07	11 15a	5 16b	9.3	10.7	7.8	10.5	1.4	1.1	.....	1.8	4.6	5.2	15.5
51	11 24	5 01	11 17a	5 11b	8.3	9.5	7.0	9.5	1.4	1.1	.....	1.7	4.2	4.6	15.5
52	11 19	5 04	11 12a	5 14b	8.6	9.9	7.2	9.8	1.4	1.1	.....	1.7	4.3	4.8	15.5
53	12 13	6 16	12 05a	6 27b	6.9	7.9	5.8	7.9	1.2	1.0	.....	1.6	3.4	3.9	15.5
54	1 01	7 32	0 51b	7 46b	4.7	5.4	4.0	5.5	1.0	0.8	.....	1.3	2.4	2.7	15.5
55	1 08	7 34	0 55b	7 46b	5.6	6.4	4.7	6.5	1.1	0.9	.....	1.4	2.8	3.2	15.5
56	1 05	7 44	0 57b	7 56b	6.0	6.9	5.0	7.0	1.1	1.0	.....	1.5	3.0	3.5	15.5
57	1 30	8 10	1 22b	8 22b	5.1	5.9	4.3	6.0	1.1	0.8	.....	1.3	2.6	2.9	15.5
58	2 13	9 09	2 05b	9 21b	5.1	5.9	4.3	6.0	1.1	0.8	.....	1.3	2.6	2.9	16.0
59	2 39	10 03	2 29b	10 17b	4.3	4.9	3.6	5.1	1.0	0.8	.....	1.2	2.2	2.5	16.0
60	2 54	10 18	2 44b	10 32b	4.3	4.9	3.6	5.1	1.0	0.8	.....	1.2	2.2	2.5	16.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference		Tidal differences				Ratio of ranges
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW	LW	HW.	LW	
NORTH AMERICA (EAST COAST)—Continued.											
MAINE—continued.											
Casco Bay											
		North	West				Time meridian 75° W		Mean Low Water		
				h m			h m	h m	feet	feet	
1	Small Point Harbor .....	43 44	69 51	4 39	Portland .....	59	-0 15	-0 15	-0 2	0 0	0.98
2	Foster Point, New Meadow R. ....	43 52	69 53	4 40	Portland .....	59	+0 21	+0 25	0 0	0 0	1.00
3	Lowell Cove, Orrs Island. ....	43 45	69 59	4 40	Portland .....	59	0 00	0 00	-0 1	0 0	0.99
4	Mericoneag Sound.....	43 43	70 01	4 40	Portland .....	59	-0 02	-0 02	-0 3	0 0	0.97
5	Harpwell Harbor .....	43 46	70 00	4 40	Portland .....	59	-0 17	-0 21	0 0	0 0	1.00
6	Potts Harbor .....	43 44	70 02	4 40	Portland .....	59	0 00	0 00	-0 2	0 0	0.98
7	Middle Bay Cove, Pennell's Wharf.	43 51	69 57	4 40	Portland .....	59	+0 27	+0 32	+0 5	0 0	1.06
8	Maquoit Bay .....	43 51	70 01	4 40	Portland .....	59	+0 23	+0 26	+0 6	0 0	1.07
9	Bartol Point, Freeport River .....	43 50	70 06	4 40	Portland .....	59	+0 25	+0 29	+0 1	0 0	1.01
10	Great Chebeag Island .....	43 45	70 06	4 40	Portland .....	59	+0 01	+0 01	0 0	0 0	1.00
11	Parker Point, Yarmouth River.....	43 47	70 08	4 41	Portland .....	59	+0 24	+0 27	+0 2	0 0	1.02
12	PORTLAND .....	43 39	70 15	4 41	Portland .....	59	0 00	0 00	0 0	0 0	1.00
Outer coast											
13	Richmonds Island .....	43 33	70 14	4 41	Portland .....	59	-0 11	-0 11	-0 3	0 0	0.97
14	Wood Island .....	43 27	70 20	4 41	Portland .....	59	+0 01	-0 05	0 0	0 0	1.00
15	Saco River Entrance .....	43 28	70 24	4 42	Portland .....	59	-0 03	-0 03	0 0	0 0	1.00
16	Kennebunk Port .....	43 22	70 28	4 42	Portland .....	59	+0 05	+0 06	0 0	0 0	1.00
NEW HAMPSHIRE.											
17	Portsmouth.....	43 05	70 44	4 43	Portland .....	59	+0 14	+0 15	+0 3	0 0	1.03
18	Isles of Shoals Light .....	42 58	70 37	4 42	Portland .....	59	+0 09	+0 03	-0 2	0 0	0.96
19	Hampton Harbor .....	42 54	70 49	4 43	Portland .....	59	+0 17	+0 18	-1.2	0 0	0.87
MASSACHUSETTS.											
20	Newburyport.....	42 48	70 52	4 43	Portland .....	59	+0 14	+0 16	-1 0	0 0	0.89
21	Ipswich Entrance .....	42 41	70 50	4 43	Portland .....	59	+0 08	+0 10	-0 1	0 0	0.99
22	Annisquam .....	42 40	70 41	4 43	Portland .....	59	+0 04	+0 06	-0 1	0 0	0.99
23	Rockport .....	42 39	70 37	4 42	Portland .....	59	-0 13	-0 12	-0 3	0 0	0.97
24	Gloucester .....	42 37	70 40	4 43	Portland .....	59	-0 07	-0 05	0 0	0 0	1.00
25	Salem .....	42 32	70 53	4 44	Boston .....	63	-0 11	-0 14	-0 4	0 0	0.96
26	Marblehead .....	42 30	70 51	4 43	Boston .....	63	-0 19	-0 21	-0 4	0 0	0.96
27	Nahant .....	42 25	70 54	4 44	Boston .....	63	-0 18	-0 20	-0 3	0 0	0.97
28	Lynn Harbor .....	42 27	70 57	4 44	Boston .....	63	-0 07	-0 09	-0 1	0 0	0.99
29	Boston .....	42 22	71 08	4 44	Boston .....	63	0 00	0 00	0 0	0 0	1.00
30	Boston Light .....	42 20	70 53	4 44	Boston .....	63	-0 18	-0 21	-0 1	0 0	0.99
31	Cohasset Harbor .....	42 15	70 47	4 43	Boston .....	63	-0 18	-0 21	-0 2	0 0	0.98
32	Gurnet Light .....	42 00	70 36	4 42	Boston .....	63	-0 06	-0 08	-0 2	0 0	0.96
33	Plymouth .....	41 57	70 40	4 43	Boston .....	63	-0 09	-0 10	+0 6	0 0	1.06
34	Sandwich .....	41 46	70 28	4 42	Boston .....	63	+0 03	+0 01	+0 1	0 0	1.01
35	Sandy Neck Light.....	41 43	70 17	4 41	Boston .....	63	+0 06	+0 05	+0 5	0 0	1.05
36	Wellfleet, Cape Cod .....	41 56	70 02	4 40	Boston .....	63	-0 11	-0 12	+1 1	0 0	1.12
37	Provincetown, Cape Cod .....	42 08	70 11	4 41	Boston .....	63	-0 01	-0 03	-0 4	0 0	0.96
38	Race Point, Cape Cod .....	42 04	70 15	4 41	Boston .....	63	-0 09	-0 12	-0 7	0 0	0.93
39	Nauset Harbor, Cape Cod.....	41 48	69 56	4 40	Boston .....	63	+0 19	+0 41	-3.1	0 0	0.68
40	Pleasant Bay, Cape Cod .....	41 43	69 58	4 40	Boston .....	63	+1 10	+1 44	-6.1	0 0	0.36
41	Chatham, Cape Cod .....	41 40	69 58	4 40	Boston .....	63	+0 40	+0 36	-5.6	0 0	0.42
42	Monomoy Point .....	41 33	70 00	4 40	Boston .....	63	+0 29	+0 27	-5.9	0 0	0.39
43	Pollock Rip .....	41 33	69 55	4 40	Boston .....	63	+0 19	+0 17	-5.5	0 0	0.43
Nantucket Sound, north side.											
44	Stage Harbor .....	41 40	69 58	4 40	Newport.....	67	+4 44	+5 13	-0.2	0 0	0.94
45	Bass River Breakwater.....	41 38	70 11	4 41	Newport.....	67	+4 40	+4 57	+0.2	0 0	1.06
46	Point Gammon .....	41 37	70 16	4 41	Newport.....	67	+4 37	+4 44	-0.2	0 0	0.94
47	Hyannis .....	41 38	70 17	4 41	Newport.....	67	+4 35	+4 42	-0.4	0 0	0.89
48	Succomesnet Point.....	41 33	70 29	4 42	Old Point Comfort	91	+3 08	+3 02	-0.6	0 0	0.76
Nantucket Island.											
49	Great Point .....	41 23	70 03	4 40	Newport.....	67	+4 21	+4 46	-0.5	0 0	0.86
50	Wauwinet (outer shore).....	41 20	70 00	4 40	Newport.....	67	+4 37	+5 09	-0.2	0 0	0.94
51	Siasconset .....	41 16	69 58	4 40	Old Point Comfort	91	+2 25	+2 44	-0.2	0 0	0.92
52	Tom Nevers Head .....	41 14	70 01	4 40	Old Point Comfort	91	+1 13	+1 03	-1.3	0 0	0.65
53	Forked Pond .....	41 14	70 02	4 40	Old Point Comfort	91	-0 30	-0 07	-1.1	0 0	0.56
54	Weweeder .....	41 14	70 06	4 40	Old Point Comfort	91	-1 02	-0 45	-0.3	0 0	0.88
55	Smith Point, south side .....	41 17	70 15	4 41	Old Point Comfort	91	-1 13	-0 55	-0.3	0 0	0.88
56	Smith Point, north side .....	41 17	70 15	4 41	Old Point Comfort	91	+3 05	+3 04	+0.2	0 0	1.06
57	Nantucket Harbor .....	41 17	70 06	4 40	Old Point Comfort	91	+3 19	+3 19	+0.6	0 0	1.24

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>
1	10 58	4 48	10 51a	4 58b	8.7	10.0	7.3	9.9	1.4	1.1	.....	1.7	4.4	4.9	15.5
2	11 38	5 22	11 26a	5 32b	8.9	10.2	7.5	10.1	1.4	1.1	.....	1.8	4.4	5.0	15.5
3	11 12	4 57	11 05a	5 07b	8.8	10.1	7.4	10.0	1.4	1.1	.....	1.8	4.4	4.9	15.0
4	11 10	4 55	11 03a	5 05b	8.6	9.9	7.2	9.8	1.4	1.1	.....	1.7	4.3	4.8	15.0
5	10 55	4 36	10 48a	4 46b	8.9	10.2	7.5	10.1	1.4	1.1	.....	1.8	4.4	5.0	15.0
6	11 12	4 57	11 05a	5 07b	8.7	10.0	7.3	9.9	1.4	1.1	.....	1.7	4.4	4.9	15.0
7	11 39	5 29	11 33a	5 38b	9.4	10.8	7.9	10.6	1.4	1.1	.....	1.8	4.7	5.2	15.0
8	11 35	5 23	11 29a	5 32b	9.5	10.9	8.0	10.7	1.4	1.1	.....	1.8	4.8	5.3	15.0
9	11 37	5 26	11 30a	5 36b	9.0	10.4	7.6	10.2	1.4	1.1	.....	1.8	4.5	5.0	15.0
10	11 13	4 58	11 06a	5 06b	8.9	10.2	7.5	10.1	1.4	1.1	.....	1.8	4.4	5.0	15.0
11	11 35	5 23	11 28a	5 33b	9.1	10.5	7.6	10.3	1.4	1.1	.....	1.8	4.6	5.1	15.0
12	11 11	4 56	11 03a	5 05b	8.9	10.2	7.5	9.8	1.2	1.2	8 12	1.7	4.5	4.9	14.5
13	11 00	4 45	10 53a	4 55b	8.6	9.9	7.2	9.8	1.4	1.1	.....	1.7	4.3	4.8	14.5
14	11 12	4 51	11 05a	5 01b	8.9	10.2	7.5	10.2	1.4	1.1	.....	1.8	4.4	5.0	14.5
15	11 07	4 52	11 00a	5 02b	8.9	10.2	7.5	10.2	1.4	1.1	.....	1.8	4.4	5.0	14.5
16	11 15	5 01	11 08a	5 11b	8.9	10.2	7.5	10.2	1.4	1.1	.....	1.8	4.4	5.0	14.0
17	11 23	5 09	11 16a	5 19b	9.2	10.5	7.7	10.4	1.4	1.1	.....	1.8	4.6	5.1	13.5
18	11 19	4 58	11 12a	5 08b	8.7	10.0	7.3	10.0	1.4	1.1	.....	1.7	4.4	4.9	13.5
19	11 26	5 12	11 19a	5 22b	7.7	8.8	6.5	8.8	1.3	1.0	.....	1.6	3.8	4.3	13.0
20	11 23	5 10	11 16a	5 21b	7.9	9.1	6.6	9.0	1.3	1.0	.....	1.7	4.0	4.4	13.0
21	11 17	5 04	11 10a	5 14b	8.8	10.1	7.4	9.9	1.4	1.1	.....	1.8	4.4	4.9	13.0
22	11 13	5 00	11 06a	5 10b	8.8	10.1	7.4	9.9	1.4	1.1	.....	1.8	4.4	4.9	13.0
23	10 57	4 43	10 50a	4 53b	8.6	9.9	7.2	9.7	1.4	1.1	.....	1.7	4.3	4.8	13.5
24	11 02	4 49	10 55a	4 59b	8.9	10.2	7.5	10.0	1.4	1.1	.....	1.8	4.4	5.0	13.0
25	11 16	5 03	11 10a	5 12b	9.2	10.6	7.7	10.0	1.3	1.0	.....	1.6	4.6	4.9	13.0
26	11 09	4 57	11 03a	5 06b	9.2	10.6	7.7	10.0	1.3	1.0	.....	1.6	4.6	4.9	13.0
27	11 09	4 57	11 03a	5 06b	9.3	10.7	7.8	10.1	1.3	1.0	.....	1.6	4.6	4.9	13.0
28	11 20	5 08	11 14a	5 17b	9.5	10.9	8.0	10.3	1.3	1.0	.....	1.7	4.8	5.0	13.0
29	11 28	5 18	11 22a	5 27b	9.6	10.9	8.1	10.1	1.4	1.0	8 56	1.6	4.8	5.0	12.5
30	11 09	4 56	11 03a	5 05b	9.5	10.9	8.0	10.3	1.3	1.0	.....	1.7	4.8	5.1	12.5
31	11 10	4 57	11 04a	5 06b	9.4	10.8	7.9	10.2	1.3	1.0	.....	1.7	4.7	5.0	12.5
32	11 23	5 11	11 17a	5 20b	9.4	10.8	7.9	10.2	1.3	1.0	.....	1.7	4.7	5.0	12.5
33	11 19	5 08	11 13a	5 17b	10.2	11.7	8.6	11.0	1.4	1.0	.....	1.7	5.1	5.4	12.0
34	11 32	5 20	11 26a	5 29b	9.7	11.2	8.1	10.6	1.3	1.0	.....	1.7	4.8	5.2	12.5
35	11 36	5 25	11 30a	5 34b	10.1	11.6	8.5	10.9	1.4	1.0	.....	1.7	5.0	5.4	12.5
36	11 20	5 09	11 14a	5 18b	10.7	12.3	9.0	11.5	1.4	1.0	.....	1.8	5.4	5.7	13.0
37	11 29	5 17	11 23a	5 26b	9.2	10.6	7.7	10.0	1.3	1.0	.....	1.6	4.6	4.9	13.0
38	11 21	5 08	11 15a	5 17b	8.9	10.2	7.5	9.7	1.3	1.0	.....	1.6	4.4	4.8	13.0
39	11 40	6 02	11 43a	6 12b	6.5	7.5	5.5	7.1	1.0	0.7	.....	1.3	3.2	3.4	13.0
40	0 16	7 06	0 07b	7 18b	3.5	4.0	2.9	3.9	0.7	0.5	.....	0.9	1.8	1.9	13.0
41	12 11	6 57	12 01a	6 11b	4.0	4.6	3.4	4.5	0.9	0.6	.....	1.1	2.0	2.2	13.0
42	12 00	5 38	11 50a	6 01b	3.7	4.3	3.1	4.2	0.8	0.6	.....	1.0	1.8	2.0	12.5
43	11 50	5 38	11 40a	5 51b	4.1	4.7	3.4	4.6	0.9	0.6	.....	1.1	2.0	2.2	12.5
44	0 06	6 07	0 08b	6 09b	3.3	4.0	2.4	3.5	0.7	0.1	.....	0.7	1.6	1.6	13.0
45	0 03	5 50	0 03b	5 36b	2.7	4.6	2.7	3.9	0.8	0.1	.....	0.8	1.8	1.8	12.5
46	0 00	5 37	0 00b	5 24b	3.3	4.0	2.4	3.5	0.7	0.1	.....	0.7	1.6	1.6	12.5
47	12 23	5 35	12 23a	5 21b	3.1	3.8	2.3	3.3	0.7	0.1	.....	0.7	1.6	1.5	12.5
48	12 16	5 41	12 16a	5 21b	1.9	2.4	1.4	2.1	0.6	0.1	.....	0.6	1.0	0.9	12.0
49	12 10	5 40	12 10a	5 26b	3.0	3.7	2.2	3.2	0.7	0.1	.....	0.7	1.5	1.5	12.5
50	0 01	6 03	0 01b	5 50b	3.3	4.0	2.4	3.5	0.7	0.1	.....	0.7	1.6	1.6	12.5
51	11 35	5 25	11 35a	5 09b	2.3	2.8	1.7	2.5	0.6	0.1	.....	0.6	1.2	1.1	12.0
52	10 23	3 44	10 23a	3 23b	1.2	1.4	0.9	1.3	0.4	0.1	.....	0.4	0.6	0.6	12.0
53	8 40	2 34	8 40a	2 11b	1.4	1.7	1.0	1.6	0.5	0.1	.....	0.5	0.7	0.7	12.0
54	8 08	1 56	8 08a	1 39b	2.2	2.7	1.6	2.4	0.6	0.1	.....	0.6	1.1	1.1	12.0
55	7 56	1 45	7 56a	1 28b	2.2	2.7	1.6	2.4	0.6	0.1	.....	0.6	1.1	1.1	12.0
56	12 14	5 44	12 14a	5 28b	2.7	3.3	2.0	2.9	0.7	0.1	.....	0.7	1.4	1.3	12.0
57	0 04	6 00	0 04b	5 46b	3.1	3.8	2.3	3.3	0.7	0.1	.....	0.7	1.6	1.5	12.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
MASSACHUSETTS—continued.											
Tuckernuck Island.		North.	West.				Time meridian, 75° W.		Mean Low Water.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	East Pond .....	41 18	70 15	4 41	Old Point Comfort	91	+2 56	+2 52	+0.1	0.0	1.04
Muskeget Island.											
2	Life-saving station .....	41 20	70 19	4 41	Old Point Comfort	91	+1 58	+2 17	-0.9	0.0	0.64
Chappaquiddick Island.											
3	Cape Poge Light .....	41 25	70 27	4 42	Old Point Comfort	91	+2 45	+2 33	-0.5	0.0	0.80
4	Chappaquiddick Dike .....	41 22	70 27	4 42	Old Point Comfort	91	+2 31	+2 24	-0.9	0.0	0.64
5	Wasque Point .....	41 21	70 27	4 42	Old Point Comfort	91	+0 04	+0 22	-1.0	0.0	0.60
Marthas Vineyard.											
6	Edgartown .....	41 23	70 31	4 42	Old Point Comfort	91	+3 08	+2 42	-0.5	0.0	0.60
7	Katama Bay .....	41 22	70 29	4 42	Old Point Comfort	91	+0 04	+0 21	-0.8	0.0	0.68
8	Pahognet .....	41 21	70 35	4 42	Old Point Comfort	91	-0 30	-0 13	-0.4	0.0	0.84
9	Chilmark Pond .....	41 20	70 43	4 43	Old Point Comfort	91	-1 02	-0 45	0.0	0.0	1.00
10	No Mans Land Island .....	41 16	70 49	4 43	Old Point Comfort	91	-1 42	-1 26	+0.7	0.0	1.28
11	Gay Head Light .....	41 21	70 51	4 43	Old Point Comfort	91	-1 36	-1 18	+0.5	0.0	1.20
12	Menemsha Bight .....	41 21	70 47	4 43	Old Point Comfort	91	-1 25	-1 05	+0.2	0.0	1.04
13	Cedar Tree Neck .....	41 26	70 42	4 43	Old Point Comfort	91	-1 18	-0 41	-0.2	0.0	0.92
14	Chappaquonsett .....	41 28	70 38	4 43	Old Point Comfort	91	-0 08	+0 37	-0.2	0.0	0.92
15	West Chop Light .....	41 29	70 36	4 42	Old Point Comfort	91	+2 26	+1 54	-0.9	0.0	0.64
16	Vineyard Haven .....	41 28	70 36	4 42	Old Point Comfort	91	+2 35	+2 24	-0.8	0.0	0.68
17	East Chop Light .....	41 28	70 34	4 42	Old Point Comfort	91	+2 30	+2 01	-0.9	0.0	0.64
18	Cottage City .....	41 27	70 33	4 42	Old Point Comfort	91	+2 42	+2 15	-0.8	0.0	0.68
Vineyard Sound, north side.											
19	Monant Hill .....	41 33	70 32	4 42	Old Point Comfort	91	+1 16	+1 30	-1.5	0.0	0.40
20	Falmouth .....	41 32	70 37	4 42	Old Point Comfort	91	+1 16	+1 33	-1.0	0.0	0.60
21	Nobeka Point Light .....	41 31	70 39	4 43	Old Point Comfort	91	-0 36	-0 02	-1.0	0.0	0.60
22	Tarpaulin Cove .....	41 28	70 45	4 43	Old Point Comfort	91	-1 17	-0 47	-0.2	0.0	0.92
23	Quicks Hole, south side .....	41 26	70 51	4 43	Newport .....	67	-0 08	+0 38	-0.4	0.0	0.88
Buzzards Bay.											
24	Cuttyhunk Light .....	41 25	70 57	4 44	Newport .....	67	-0 13	+0 09	0.0	0.0	1.00
25	Penikese Island .....	41 27	70 55	4 44	Newport .....	67	-0 08	+0 10	+0.1	0.0	1.03
26	Quicks Hole, north side .....	41 27	70 50	4 43	Newport .....	67	-0 08	+0 07	+0.2	0.0	1.06
27	Kettle Cove .....	41 28	70 47	4 43	Newport .....	67	-0 02	+0 24	+0.8	0.0	1.23
28	Uncatena I., N. side Woods Hole ..	41 31	70 42	4 43	Newport .....	67	+0 13	+0 15	+0.6	0.0	1.17
29	Woods Hole, Fish Comm. Wharf ..	41 31	70 40	4 43	Old Point Comfort	91	-0 31	-0 29	-0.8	0.0	0.67
30	Hog Island Harbor .....	41 37	70 38	4 43	Newport .....	67	+0 04	+0 07	+0.6	0.0	1.17
31	Pocasset Harbor .....	41 41	70 37	4 42	Newport .....	67	+0 03	+0 03	+0.6	0.0	1.17
32	Back River Harbor .....	41 44	70 37	4 42	Newport .....	67	+0 05	-0 02	+0.6	0.0	1.17
33	Wareham River .....	41 44	70 43	4 43	Newport .....	67	+0 14	+0 14	+0.6	0.0	1.17
34	Bird Island Light .....	41 40	70 43	4 43	Newport .....	67	+0 09	+0 08	+0.8	0.0	1.23
35	Mattapoisett .....	41 39	70 49	4 43	Newport .....	67	+0 11	+0 09	+0.4	0.0	1.11
36	Clark Point .....	41 36	70 54	4 44	Newport .....	67	+0 06	+0 18	+0.4	0.0	1.11
37	New Bedford .....	41 38	70 55	4 44	Newport .....	67	+0 12	+0 28	+0.7	0.0	1.29
38	Dumpling Rock Light .....	41 32	70 55	4 44	Newport .....	67	+0 14	+0 18	+0.3	0.0	1.09
39	Westport .....	41 31	71 04	4 44	Newport .....	67	+0 13	+0 37	-0.4	0.0	0.89
RHODE ISLAND.											
Narragansett Bay.											
40	Sakonnet Point Light .....	41 27	71 12	4 45	Newport .....	67	-0 04	-0 16	+0.1	0.0	1.03
41	NEWPORT .....	41 29	71 20	4 45	Newport .....	67	0 00	0 00	0.0	0.0	1.00
42	Beavertail Light .....	41 27	71 24	4 46	Newport .....	67	-0 07	+0 10	+0.3	0.0	1.09
43	Wickford .....	41 34	71 27	4 46	Newport .....	67	+0 07	-0 13	+0.7	0.0	1.30
44	Prudence Island Light .....	41 36	71 18	4 45	Newport .....	67	+0 08	-0 13	+0.8	0.0	1.23
45	Bristol Ferry Light .....	41 39	71 16	4 45	Newport .....	67	+0 09	-0 09	+0.9	0.0	1.35
46	Bristol .....	41 40	71 16	4 45	Newport .....	67	+0 18	+0 07	+0.6	0.0	1.17
47	Fall River, Mass .....	41 42	71 10	4 45	Sandy Hook .....	88	+0 24	-0 47	+0.3	0.0	1.04
48	East Greenwich .....	41 40	71 27	4 46	Charleston .....	107	0 00	-1 00	-0.6	0.0	0.57
49	Warren .....	41 44	71 17	4 45	Charleston .....	107	+0 08	-0 43	-0.5	0.0	0.88
50	Nayat Point .....	41 43	71 21	4 45	Charleston .....	107	-0 07	-0 55	-0.2	0.0	0.94
51	Pawtuxet .....	41 46	71 23	4 46	Charleston .....	107	+0 03	-0 51	-0.4	0.0	0.90
52	Providence .....	41 49	71 24	4 46	Newport .....	67	+0 29	+0 09	+0.9	0.0	1.27

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn.).	Spring (Sg.).	Neap (Np.).	Great tropic (Gc.).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>
1	12 05	5 32	12 06a	5 15b	2.6	3.0	1.9	2.8	0.7	0.1	.....	0.7	1.3	1.3	12.0
2	11 07	4 57	11 07a	4 37b	1.6	2.0	1.2	1.7	0.5	0.1	.....	0.5	0.8	0.8	12.0
3	11 53	5 12	11 53a	4 53b	2.0	2.4	1.5	2.2	0.6	0.1	.....	0.6	1.0	1.0	12.0
4	11 39	5 03	11 39a	4 43b	1.6	2.0	1.2	1.8	0.5	0.1	.....	0.5	0.8	0.8	12.0
5	9 12	3 01	9 12a	2 40b	1.5	1.8	1.0	1.7	0.5	0.1	.....	0.5	0.8	0.7	12.0
6	12 16	5 21	12 16a	5 02b	2.0	2.4	1.5	2.2	0.6	0.1	.....	0.6	1.0	1.0	12.0
7	9 12	3 00	9 12a	2 42b	1.7	2.1	1.2	1.9	0.5	0.1	.....	0.5	0.8	0.8	12.0
8	8 38	2 26	8 38a	2 08b	2.1	2.6	1.5	2.3	0.6	0.1	.....	0.6	1.0	1.0	12.0
9	8 05	1 53	8 05a	1 34b	2.5	3.1	1.8	2.7	0.6	0.1	.....	0.6	1.2	1.2	12.0
10	7 25	1 12	7 25a	0 56b	3.2	4.0	2.3	3.4	0.7	0.1	.....	0.7	1.6	1.6	11.5
11	7 31	1 20	7 31a	1 06b	3.0	3.7	2.2	3.2	0.7	0.1	.....	0.7	1.5	1.5	11.5
12	7 42	1 33	7 42a	1 17b	2.7	3.3	2.0	2.9	0.7	0.1	.....	0.7	1.4	1.3	11.5
13	7 49	1 57	7 49a	1 41b	2.3	2.8	1.7	2.5	0.6	0.1	.....	0.6	1.2	1.1	12.0
14	8 59	3 15	8 59a	2 59b	2.3	2.8	1.7	2.5	0.6	0.1	.....	0.6	1.2	1.1	12.0
15	11 34	4 33	11 34a	4 13b	1.6	2.0	1.2	1.7	0.5	0.1	.....	0.5	0.8	0.8	12.0
16	11 43	5 03	11 43a	4 45b	1.7	2.1	1.2	1.9	0.5	0.1	.....	0.5	0.8	0.8	12.0
17	11 38	4 40	11 38a	4 20b	1.6	2.0	1.2	1.8	0.5	0.1	.....	0.5	0.8	0.8	12.0
18	11 50	4 54	11 50a	4 36b	1.7	2.1	1.2	1.9	0.5	0.1	.....	0.5	0.8	0.8	12.0
19	10 24	4 09	10 24a	3 44b	1.0	1.2	0.7	1.1	0.4	0.1	.....	0.4	0.5	0.5	12.0
20	10 24	4 12	10 24a	3 55b	1.5	1.8	1.1	1.6	0.4	0.1	.....	0.4	0.8	0.7	12.0
21	8 32	2 36	8 32a	2 19b	1.5	1.8	1.1	1.6	0.4	0.1	.....	0.4	0.8	0.7	12.0
22	7 51	1 51	7 51a	1 35b	2.3	2.8	1.7	2.5	0.6	0.1	.....	0.6	1.2	1.1	12.0
23	7 38	1 29	7 38a	1 15b	3.1	3.8	2.3	3.3	0.7	0.1	.....	0.7	1.6	1.5	12.0
24	7 36	0 59	7 36a	0 45a	3.5	4.3	2.6	3.7	0.8	0.1	.....	0.8	1.8	1.7	12.0
25	7 37	1 00	7 37a	0 46a	3.6	4.5	2.6	3.8	0.8	0.1	.....	0.8	1.8	1.8	12.0
26	7 38	0 58	7 38a	0 44a	3.7	4.6	2.7	3.9	0.8	0.1	.....	0.8	1.8	1.8	12.0
27	7 44	1 15	7 44a	1 03a	4.3	5.3	3.1	4.5	0.8	0.1	.....	0.8	2.2	2.1	12.0
28	7 59	1 06	7 59a	0 53a	4.1	5.0	3.0	4.3	0.8	0.1	.....	0.8	2.0	2.0	12.0
29	8 36	2 09	8 36a	1 51a	1.7	2.1	1.2	1.9	0.5	0.1	.....	0.5	0.8	0.8	12.0
30	7 50	0 58	7 50a	0 45a	4.1	5.1	3.0	4.3	0.8	0.1	.....	0.8	2.0	2.0	12.0
31	7 50	0 55	7 50a	0 42a	4.1	5.1	3.0	4.3	0.8	0.1	.....	0.8	2.0	2.0	12.0
32	7 52	0 50	7 52a	0 37a	4.1	5.1	3.0	4.3	0.8	0.1	.....	0.8	2.0	2.0	12.0
33	8 00	1 05	8 00a	0 52a	4.1	5.1	3.0	4.3	0.8	0.1	.....	0.8	2.0	2.0	12.0
34	7 55	0 59	7 55a	0 47a	4.3	5.3	3.1	4.5	0.8	0.1	.....	0.8	2.2	2.1	12.0
35	7 57	1 00	7 57a	0 47a	3.9	4.8	2.8	4.1	0.8	0.1	.....	0.8	2.0	1.9	12.0
36	7 51	1 08	7 51a	0 55a	3.9	4.8	2.8	4.1	0.8	0.1	.....	0.8	2.0	1.9	12.0
37	7 57	1 18	7 57a	1 06a	4.2	5.2	3.1	4.4	0.8	0.1	.....	0.8	2.1	2.1	12.0
38	7 59	1 08	7 59a	0 55a	3.8	4.7	2.8	4.0	0.8	0.1	.....	0.8	1.9	1.9	12.0
39	7 58	1 27	7 58a	1 13a	3.1	3.8	2.3	3.3	0.7	0.1	.....	0.7	1.6	1.5	12.0
40	7 40	1 05	7 40a	0 51a	3.6	4.5	2.6	3.8	0.8	0.1	.....	0.8	1.8	1.8	12.0
41	7 44	0 49	7 44a	0 35a	3.5	4.3	2.5	3.8	0.8	0.1	7 31	0.8	1.7	1.7	12.0
42	7 36	0 58	7 40a	0 56a	3.8	4.7	2.8	4.0	0.8	0.1	.....	0.8	1.9	1.9	12.0
43	7 50	0 35	7 52a	0 23a	4.2	5.2	3.1	4.4	0.8	0.1	.....	0.8	2.1	2.1	11.5
44	7 52	0 36	7 52a	0 24a	4.3	5.3	3.1	4.5	0.8	0.1	.....	0.8	2.2	2.1	11.5
45	7 53	0 40	7 54a	0 29a	4.4	5.2	3.6	4.6	0.8	0.1	.....	0.8	2.2	2.1	11.5
46	8 02	0 56	8 02a	0 44a	4.1	4.8	3.3	4.3	0.8	0.1	7 46	0.8	2.0	2.0	11.5
47	8 10	0 51	8 11a	0 42a	4.9	5.8	4.0	5.1	0.8	0.1	.....	0.8	2.4	2.4	12.0
48	8 00	0 45	8 01a	0 34a	4.5	5.3	3.6	4.7	0.8	0.1	.....	0.8	2.2	2.2	11.5
49	8 04	1 03	8 05a	0 52a	4.6	5.4	3.7	4.8	0.8	0.1	.....	0.8	2.3	2.2	12.0
50	7 54	0 51	7 55a	0 40a	4.9	5.8	4.0	5.1	0.8	0.1	.....	0.8	2.4	2.4	12.0
51	8 08	0 54	8 02a	1 05b	4.7	5.6	3.7	4.9	0.8	0.1	.....	0.8	2.4	2.3	12.0
52	8 12	0 57	8 11a	1 09b	4.4	5.4	3.4	4.7	0.8	0.1	7 25	0.8	2.2	2.1	12.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			H.W.	L.W.	H.W.	L.W.		
NORTH AMERICA (EAST COAST)—Continued.												
RHODE ISLAND—continued.												
	Outer coast.	North.	West.					Time meridian, 75° W.		Mean Low Water.		
		° ' "	° ' "	h. m.				h. m.	h. m.	feet.	feet.	
1	Point Judith Light.....	41 22	71 29	4 46	Newport.....	67	-0 11	+0 29	-0.4	0.0	0.59	
2	Block Island, Basin Harbor.....	41 10	71 33	4 46	Newport.....	67	-0 10	+0 37	-0.5	0.0	0.58	
3	Watch Hill Light.....	41 18	71 52	4 47	New London.....	71	-0 38	-0 53	+0.3	0.0	1.06	
CONNECTICUT.												
Long Island Sound, north side.												
4	Stonington.....	41 20	71 54	4 48	New London.....	71	-0 17	-0 27	+0.3	0.0	1.08	
5	Noank, Mystic River Entrance.....	41 19	71 59	4 48	New London.....	71	-0 08	-0 12	0.0	0.0	1.00	
6	New London, Custom-House Whf.....	41 21	72 06	4 48	New London.....	71	0 00	0 00	0.0	0.0	1.00	
7	New London Naval Station.....	41 24	72 06	4 48	New London.....	71	+0 06	+0 11	+0.1	0.0	1.00	
8	Norwich, Thames River.....	41 32	72 06	4 48	New London.....	71	+0 41	+0 47	+0.7	0.0	1.24	
9	Millstone Point.....	41 18	72 10	4 49	New London.....	71	+0 06	+0 04	+0.3	0.0	1.08	
10	Saybrook Breakwater.....	41 16	72 21	4 49	New London.....	71	+1 04	+0 42	+1.2	0.0	1.44	
11	Saybrook, Connecticut River.....	41 17	72 21	4 49	New London.....	71	+1 14	+0 57	+1.2	0.0	1.44	
12	Lyme Ferry, Connecticut River.....	41 18	72 20	4 49	New London.....	71	+1 30	+1 24	+0.9	0.0	1.32	
13	Essex, Connecticut River.....	41 21	72 23	4 50	New London.....	71	+1 48	+1 51	+0.5	0.0	1.16	
14	Chester, Connecticut River.....	41 24	72 26	4 50	New London.....	71	+2 16	+2 30	0.0	0.0	1.00	
15	Higganum, Connecticut River.....	41 30	72 33	4 50	New London.....	71	+3 14	+4 01	-0.5	0.0	0.75	
16	Middletown, Connecticut River.....	41 34	72 39	4 51	New London.....	71	+3 55	+4 48	-0.9	0.0	0.60	
17	South Glastonbury, Conn. River.....	41 40	72 37	4 50	New London.....	71	+4 49	+6 01	-1.3	0.0	0.44	
18	Wethersfield, Connecticut River.....	41 43	72 39	4 51	New London.....	71	+5 23	+6 46	-1.5	0.0	0.36	
19	Hartford, Connecticut River.....	41 46	72 40	4 51	New London.....	71	+5 52	+7 23	-1.6	0.0	0.32	
20	Duck Island.....	41 16	72 28	4 50	Sandy Hook.....	83	+3 05	+2 58	-0.1	0.0	0.96	
21	Falkner Island Light.....	41 13	72 39	4 51	Sandy Hook.....	83	+3 14	+3 05	+0.8	0.0	1.15	
22	Money Island, Thimble Islands.....	41 15	72 45	4 51	Willels Point.....	75	-0 15	-0 46	-0.7	0.0	0.78	
23	Branford.....	41 16	72 49	4 51	Willels Point.....	75	-0 11	-0 40	-1.7	0.0	0.73	
24	Southwest Ledge Light.....	41 14	72 55	4 52	Willels Point.....	75	-0 14	-0 44	-1.6	0.0	0.79	
25	New Haven.....	41 18	72 56	4 52	Willels Point.....	75	-0 04	-0 31	-1.3	0.0	0.83	
26	Milford Roads.....	41 10	73 02	4 52	Willels Point.....	75	-0 06	-0 31	-0.7	0.0	0.92	
27	Bridgeport.....	41 10	73 11	4 53	Willels Point.....	75	-0 02	-0 20	0.0	0.0	1.00	
28	Black Rock Harbor Light.....	41 09	73 13	4 53	Willels Point.....	75	-0 03	-0 20	-0.2	0.0	0.99	
29	Saugatuck.....	41 06	73 21	4 53	Willels Point.....	75	-0 05	-0 21	-0.3	0.0	0.97	
30	Westport.....	41 09	73 22	4 53	Willels Point.....	75	+0 08	-0 10	-0.2	0.0	0.99	
31	Wilsons Point.....	41 06	73 24	4 54	Willels Point.....	75	-0 05	-0 18	-0.1	0.0	1.00	
32	Norwalk Islands Lt., Sheffield Is.....	41 03	73 25	4 54	Willels Point.....	75	-0 07	-0 27	-0.3	0.0	0.97	
33	Darien.....	41 03	73 29	4 54	Willels Point.....	75	-0 06	-0 26	-0.2	0.0	0.99	
34	Stamford.....	41 02	73 33	4 54	Willels Point.....	75	-0 05	-0 25	-0.2	0.0	0.99	
35	Greenwich.....	41 02	73 35	4 54	Willels Point.....	75	-0 04	-0 24	+0.1	0.0	1.05	
NEW YORK.												
Long Island Sound, north side.												
36	Great Captain Island Light.....	40 59	73 37	4 54	Willels Point.....	75	-0 06	-0 26	0.0	0.0	1.01	
37	Mamaroneck.....	40 56	73 44	4 55	Willels Point.....	75	-0 03	-0 22	+0.2	0.0	1.04	
38	New Rochelle.....	40 54	73 46	4 55	Willels Point.....	75	+0 04	-0 12	+0.3	0.0	1.06	
39	City Island.....	40 51	73 47	4 55	Willels Point.....	75	-0 02	-0 10	+0.1	0.0	1.03	
40	Throgs Neck.....	40 48	73 47	4 55	Willels Point.....	75	0 00	+0 06	0.0	0.0	1.01	
East River.												
41	Whitestone Point.....	40 48	73 49	4 55	Willels Point.....	75	+0 03	+0 02	-0.3	0.0	0.97	
42	Clauson Point.....	40 48	73 51	4 55	Willels Point.....	75	+0 08	+0 05	-0.2	0.0	0.99	
43	College Point.....	40 48	73 51	4 55	Willels Point.....	75	+0 12	+0 06	-0.2	0.0	0.99	
44	Flushing, Flushing Bay.....	40 46	73 51	4 55	Willels Point.....	75	+0 31	+0 48	-0.8	0.0	0.90	
45	Hunts Point.....	40 48	73 52	4 55	Willels Point.....	75	+0 18	+0 07	-0.4	0.0	0.96	
46	North Brother Light.....	40 48	73 54	4 56	Willels Point.....	75	+0 12	+0 04	-0.5	0.0	0.94	
47	Lawrence Point.....	40 47	73 55	4 56	Willels Point.....	75	+0 09	+0 02	-0.8	0.0	0.90	
48	Polhemus Dock.....	40 47	73 55	4 56	Willels Point.....	75	+0 06	0 00	-1.1	0.0	0.86	
49	Pot Cove, Astoria.....	40 47	73 56	4 56	Willels Point.....	75	+0 02	0 02	-1.4	0.0	0.82	
50	Hallets Point Light, Hell Gate.....	40 47	73 56	4 56	New York.....	79	+2 49	+2 32	+0.9	0.0	1.20	
51	Hell Gate Ferry, Astoria.....	40 46	73 56	4 56	New York.....	79	+1 56	+1 35	+0.7	0.0	1.16	
52	Blackwells Island Light.....	40 46	73 56	4 56	New York.....	79	+1 50	+1 33	+0.9	0.0	1.20	
53	East 41st street, New York City.....	40 45	73 58	4 56	New York.....	79	+1 37	+1 24	+0.5	0.0	1.11	
54	East 27th street, Bellevue Hospital.....	40 44	73 58	4 56	New York.....	79	+1 23	+1 16	+0.3	0.0	1.07	
55	Brooklyn Navy-Yard.....	40 42	73 59	4 56	New York.....	79	+0 40	+0 43	0.0	0.0	1.00	
56	Brooklyn Bridge.....	40 42	74 00	4 56	New York.....	79	+0 20	+0 22	0.0	0.0	1.00	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	7 32	1 17	7 32a	1 08b	3.1	3.8	2.3	3.3	0.7	0.1	.....	0.7	1.6	1.5	11.5
2	7 33	1 25	7 33a	1 11b	3.0	3.7	2.2	3.2	0.7	0.1	.....	0.7	1.5	1.5	11.0
3	8 49	2 28	8 45a	2 58b	2.7	3.2	2.1	3.1	0.9	0.2	.....	0.9	1.4	1.4	11.0
4	9 09	3 08	9 05a	3 23b	2.7	3.2	2.1	3.1	0.9	0.2	.....	0.9	1.4	1.4	11.0
5	9 13	3 18	9 13a	3 40b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	11.0
6	9 26	3 30	9 21a	3 51b	2.5	2.9	1.9	2.8	0.9	0.2	8 31	0.9	1.2	1.3	11.0
7	9 32	3 41	9 27a	4 01b	2.5	2.9	2.0	2.8	0.9	0.2	8 27	0.9	1.2	1.3	11.0
8	10 07	4 17	10 03a	4 37b	3.1	3.7	2.4	3.5	1.0	0.2	.....	1.0	1.6	1.6	11.0
9	9 31	3 33	9 27a	3 58b	2.7	3.2	2.1	3.1	0.9	0.2	.....	0.9	1.4	1.4	11.0
10	10 29	4 11	10 25a	4 30b	3.6	4.3	2.8	4.1	1.1	0.3	.....	1.1	1.8	1.8	10.5
11	10 39	4 26	10 35a	4 45b	3.6	4.3	2.8	4.1	1.1	0.3	.....	1.1	1.8	1.8	10.5
12	10 56	4 53	10 51a	5 11b	3.3	4.0	2.6	3.7	1.0	0.2	.....	1.0	1.6	1.7	10.5
13	11 12	5 19	11 08a	5 40b	2.9	3.5	2.3	3.3	0.9	0.2	.....	1.0	1.4	1.5	10.5
14	11 40	5 58	11 35a	6 20b	2.5	3.0	2.0	2.7	0.9	0.2	.....	0.9	1.2	1.3	10.5
15	0 13	7 29	0 08b	7 55b	1.9	2.3	1.5	2.3	0.8	0.2	.....	0.8	1.0	1.0	10.5
16	0 53	8 15	0 47b	8 44b	1.5	1.8	1.2	1.8	0.7	0.2	.....	0.7	0.8	0.8	10.0
17	1 48	9 29	1 41b	10 03b	1.1	1.3	0.9	1.4	0.6	0.1	.....	0.6	0.6	0.6	10.5
18	2 21	10 13	2 14b	10 47b	0.9	1.0	0.7	1.1	0.5	0.1	.....	0.5	0.4	0.5	10.5
19	2 50	10 50	2 42b	11 28b	0.8	1.0	0.6	1.0	0.5	0.1	.....	0.5	0.4	0.4	10.5
20	10 46	4 31	10 42a	4 39b	4.5	5.3	3.7	5.2	0.8	0.3	.....	0.8	2.2	2.4	10.5
21	10 54	4 37	10 51a	4 45b	5.4	6.3	4.4	6.1	0.8	0.3	.....	0.9	2.7	2.9	10.0
22	10 58	4 40	10 55a	4 47b	5.6	6.6	4.6	6.3	0.9	0.3	.....	0.9	2.8	3.0	10.0
23	11 02	4 46	10 59a	4 53b	5.6	6.6	4.6	6.3	0.9	0.3	.....	0.9	2.8	3.0	10.0
24	10 58	4 41	10 54a	4 49b	5.7	6.7	4.7	6.4	0.9	0.3	.....	1.0	2.8	3.0	10.0
25	11 08	4 54	11 05a	5 02b	6.0	7.0	4.9	6.7	0.9	0.3	.....	1.0	3.0	3.2	10.0
26	11 06	4 54	11 03a	5 01b	6.6	7.7	5.4	7.3	0.9	0.3	.....	1.0	3.3	3.5	10.0
27	11 09	5 04	11 06a	5 11b	7.2	8.4	5.9	8.0	1.0	0.3	.....	1.1	3.6	3.8	10.0
28	11 08	5 04	11 05a	5 11b	7.1	8.3	5.8	7.9	1.0	0.3	.....	1.1	3.6	3.8	10.0
29	11 06	5 03	11 03a	5 10b	7.0	8.2	5.7	7.8	1.0	0.3	.....	1.1	3.5	3.7	10.0
30	11 19	5 14	11 16a	5 21b	7.1	8.3	5.8	7.9	1.0	0.3	.....	1.1	3.6	3.8	10.0
31	11 05	5 05	11 02a	5 13b	7.2	8.4	5.9	8.0	1.0	0.3	.....	1.1	3.6	3.8	9.5
32	11 03	4 56	10 58a	5 14b	7.0	8.2	5.7	7.8	1.0	0.3	.....	1.1	3.5	3.7	9.5
33	11 04	4 57	10 59a	5 05b	7.1	8.3	5.8	7.9	1.0	0.3	.....	1.1	3.6	3.8	9.5
34	11 05	4 58	11 02a	5 05b	7.1	8.3	5.8	7.9	1.0	0.3	.....	1.1	3.6	3.8	9.5
35	11 06	4 59	11 01a	5 07b	7.4	8.7	6.1	8.3	1.0	0.4	.....	1.1	3.7	3.9	9.5
36	11 04	4 57	10 59a	5 05b	7.3	8.5	6.0	8.2	1.0	0.4	.....	1.1	3.6	3.8	9.5
37	11 06	5 00	11 01a	5 08b	7.5	8.8	6.2	8.4	1.0	0.4	.....	1.1	3.8	4.0	9.5
38	11 13	5 10	11 09a	5 19b	7.6	8.9	6.2	8.5	1.0	0.4	.....	1.1	3.8	4.0	9.0
39	11 07	5 12	11 02a	5 20b	7.4	8.7	6.1	8.3	1.0	0.4	.....	1.1	3.7	3.9	9.0
40	11 09	5 14	11 04a	5 22b	7.3	8.5	6.0	8.2	1.0	0.4	.....	1.1	3.6	3.8	9.0
41	11 12	5 24	11 07a	5 32b	7.0	8.2	5.7	7.8	1.0	0.3	.....	1.1	3.5	3.7	9.0
42	11 17	5 27	11 12a	5 35b	7.1	8.3	5.8	7.9	1.0	0.3	.....	1.1	3.6	3.8	9.0
43	11 21	5 30	11 16a	5 38b	7.1	8.3	5.8	7.9	1.0	0.3	.....	1.1	3.6	3.8	9.0
44	11 40	6 10	11 35a	6 18b	6.5	7.6	5.3	7.2	0.9	0.3	.....	1.0	3.2	3.4	9.0
45	11 27	5 29	11 22a	5 37b	6.9	8.1	5.7	7.6	0.9	0.3	.....	1.0	3.4	3.6	9.0
46	11 20	5 25	11 17a	5 32b	6.8	8.0	5.6	7.5	0.9	0.3	.....	1.0	3.4	3.6	9.0
47	11 17	5 23	11 14a	5 30b	6.5	7.6	5.3	7.2	0.9	0.3	.....	1.0	3.2	3.4	9.0
48	11 14	5 21	11 11a	5 28b	6.2	7.3	5.1	6.9	0.9	0.3	.....	1.0	3.1	3.3	9.0
49	11 10	5 19	11 07a	5 27b	5.9	6.9	4.8	6.6	0.9	0.3	.....	1.0	3.0	3.2	9.0
50	10 53	4 38	10 51a	4 51b	5.3	6.4	4.1	5.7	1.0	0.2	.....	1.1	2.6	2.7	9.0
51	10 00	3 41	9 58a	3 54b	5.1	6.2	4.0	5.5	1.0	0.2	.....	1.1	2.6	2.6	9.0
52	9 54	3 39	9 52a	3 52b	5.3	6.4	4.1	5.7	1.0	0.2	.....	1.1	2.6	2.7	9.0
53	9 41	3 30	9 39a	3 42b	4.9	5.9	3.8	5.3	1.0	0.2	.....	1.0	2.4	2.5	9.0
54	9 27	3 22	9 25a	3 35b	4.7	5.7	3.7	5.1	1.0	0.2	.....	1.0	2.4	2.4	9.0
55	8 44	2 49	8 42a	3 03b	4.4	5.3	3.4	4.7	0.9	0.2	.....	1.0	2.2	2.3	9.0
56	8 24	2 28	8 22a	2 42b	4.4	5.3	3.4	4.7	0.9	0.2	.....	1.0	2.2	2.3	9.0



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
NORTH AMERICA (EAST COAST)—Continued.												
NEW YORK—continued.												
Harlem River.												
		North.	West.				Time meridian, 75° W.		Mean Low Water.			
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.		
1	East 110th street, New York City...	40 47	73 56	4 56	New York	79	+2 06	+1 36	+1.1	0.0	1.25	
2	High Bridge.....	40 51	73 56	4 56	New York	79	+2 21	+2 04	+1.6	0.0	1.36	
3	Kings Bridge.....	40 52	73 55	4 56	New York	79	+0 56	+0 59	-0.1	0.0	0.96	
Long Island Sound, south side.												
4	WILLETS POINT.....	40 48	73 47	4 55	Willets Point.....	75	0 00	0 00	0.0	0.0	1.00	
5	Hewletts Point.....	40 50	73 45	4 55	Willets Point.....	75	-0 03	-0 07	-0.1	0.0	1.00	
6	Execution Rocks Light.....	40 53	73 44	4 55	Willets Point.....	75	-0 04	-0 13	-0.1	0.0	1.01	
7	Glenor Mosquito Cove, Hempstead B. ....	40 51	73 39	4 55	Willets Point.....	75	-0 03	-0 10	-0.1	0.0	1.00	
8	Oyster Bay.....	40 52	73 31	4 54	Willets Point.....	75	-0 03	-0 17	0.0	0.0	1.01	
9	Cold Spring Harbor, Oyster Bay.....	40 52	73 28	4 54	Willets Point.....	75	0 02	-0 16	+0.3	0.0	1.06	
10	Huntington Harbor.....	40 54	73 26	4 54	Willets Point.....	75	-0 04	-0 24	+0.3	0.0	1.06	
11	Northport Harbor.....	40 54	73 21	4 53	Willets Point.....	75	-0 04	-0 24	0.0	0.0	1.01	
12	Nissequogue River.....	40 54	73 13	4 53	Willets Point.....	75	-0 07	-0 29	-0.6	0.0	0.86	
13	Stony Brook.....	40 55	73 09	4 53	Willets Point.....	75	+0 14	-0 04	-1.2	0.0	0.85	
14	Stratford Shoal Light.....	41 04	73 06	4 52	Willets Point.....	75	-0 11	-0 32	-0.7	0.0	0.92	
15	Port Jefferson Entrance.....	40 58	73 05	4 52	Willets Point.....	75	-0 10	-0 31	-1.1	0.0	0.86	
16	Port Jefferson.....	40 57	73 04	4 52	Willets Point.....	75	+0 29	+0 21	-0.7	0.0	0.92	
17	Setauket.....	40 56	73 06	4 52	Willets Point.....	75	+0 58	+0 59	-0.8	0.0	0.90	
18	Conscience Bay.....	40 57	73 07	4 52	Willets Point.....	75	+1 08	+1 35	-2.3	0.0	0.89	
19	Herod Point.....	40 57	72 50	4 51	New London.....	71	+1 32	+1 18	+2.6	0.0	2.00	
20	Jacob Point.....	40 59	72 39	4 51	New London.....	71	+1 28	+1 14	+2.2	0.0	1.84	
21	Duck Pond Point.....	41 02	72 31	4 50	New London.....	71	+1 23	+1 09	+1.8	0.0	1.66	
22	Horton Point Light.....	41 05	72 27	4 50	New London.....	71	+1 20	+1 05	+1.4	0.0	1.52	
23	Truman Beach.....	41 08	72 19	4 49	New London.....	71	+1 05	+0 48	+1.0	0.0	1.36	
24	Oyster Pond Point.....	41 10	72 14	4 49	New London.....	71	+0 29	+0 12	+0.1	0.0	1.00	
25	Little Gull Island Light.....	41 12	72 06	4 48	New London.....	71	0 00	-0 26	+0.1	0.0	1.00	
26	West Harbor, Fishers Island.....	41 16	72 00	4 48	New London.....	71	+0 05	-0 03	-0.3	0.0	0.84	
27	Gardiners Island Light.....	41 09	72 09	4 49	New London.....	71	+0 15	+0 06	-0.2	0.0	0.88	
28	Orient Harbor.....	41 08	72 18	4 49	New London.....	71	+0 45	+0 24	+0.1	0.0	1.00	
29	Greenport.....	41 06	72 21	4 49	New London.....	71	+0 53	+0 36	+0.1	0.0	1.00	
30	Southold Landing.....	41 04	72 25	4 50	New London.....	71	+1 48	+1 32	+0.1	0.0	1.00	
31	Cutchogue Harbor.....	41 00	72 27	4 50	New London.....	71	+2 01	+1 48	-0.1	0.0	0.92	
32	Jamesport.....	40 56	72 34	4 50	New London.....	71	+2 47	+2 42	0.0	0.0	0.96	
33	Sag Harbor.....	41 00	72 17	4 49	New London.....	71	+1 13	+1 07	+0.1	0.0	1.00	
34	Cedar Island Light.....	41 02	72 16	4 49	New London.....	71	+0 42	+0 31	+0.6	0.0	1.20	
35	Acabonack Harbor.....	41 01	72 08	4 49	New London.....	71	0 00	-0 08	+0.3	0.0	1.08	
36	Napeague Harbor.....	41 00	72 03	4 48	New London.....	71	-0 21	-0 35	+0.1	0.0	1.00	
37	Fort Pond Bay.....	41 03	71 58	4 48	New London.....	71	-0 46	-1 00	-0.2	0.0	0.88	
38	Montauk Point Light.....	41 04	71 51	4 47	New London.....	71	-1 07	-1 28	-0.5	0.0	0.76	
Long Island, south side.												
39	Amagansett Life-Saving Station.....	40 58	72 07	4 48	New London.....	71	-1 16	-2 05	-0.4	0.0	0.80	
40	Sagaponack.....	40 55	72 16	4 49	New London.....	71	-1 25	-1 41	-0.3	0.0	0.84	
41	South Hampton Life-Saving Station.....	40 52	72 23	4 50	New London.....	71	-1 30	-1 45	-0.1	0.0	0.92	
42	Shinnecock Life-Saving Station.....	40 51	72 28	4 50	New London.....	71	-1 36	-1 50	+0.1	0.0	1.00	
43	Quogue Life-Saving Station.....	40 48	72 36	4 50	New London.....	71	-1 42	-1 54	+0.3	0.0	1.08	
44	Moriches Life-Saving Station.....	40 46	72 43	4 51	New London.....	71	-1 47	-1 57	+0.5	0.0	1.16	
45	Bellport Life-Saving Station.....	40 43	72 56	4 52	New London.....	71	-1 52	-2 01	+0.7	0.0	1.24	
46	Bellport, Great South Bay.....	40 45	72 56	4 52	New London.....	71	+1 33	+1 24	-1.3	0.0	0.46	
47	Patchogue, Great South Bay.....	40 45	73 01	4 52	New London.....	71	+1 16	+1 07	-1.4	0.0	0.40	
48	Lone Hill Life-Saving Station.....	40 40	73 04	4 52	New London.....	71	-1 57	-2 04	+0.9	0.0	1.32	
49	Fire Island Inlet, Great South Bay.....	40 38	73 14	4 53	New London.....	71	-2 02	-2 05	-0.6	0.0	0.72	
50	Babylon, Great South Bay.....	40 41	73 19	4 53	New London.....	71	+0 29	+0 25	-1.2	0.0	0.48	
51	Gilgo Inlet, Great South Bay.....	40 37	73 25	4 54	Sandy Hook.....	83	-0 12	-0 09	-1.0	0.0	0.77	
52	New Inlet, Hempstead Bay.....	40 35	73 33	4 54	Sandy Hook.....	83	-0 07	0 04	-0.8	0.0	0.81	
53	E. Rockaway Inlet, Hempstead Bay.....	40 31	73 32	4 54	Sandy Hook.....	83	-0 01	0 00	-0.5	0.0	0.87	
54	Rockaway Inlet, Jamaica Bay.....	40 35	73 53	4 56	Sandy Hook.....	83	+0 07	+0 10	-0.6	0.0	0.85	
55	Holland Landing, Jamaica Bay.....	40 35	73 49	4 55	Sandy Hook.....	83	+0 42	+0 49	-0.5	0.0	0.87	
56	Norton Point, Jamaica Bay.....	40 38	73 45	4 55	Sandy Hook.....	83	+0 39	+1 30	-0.8	0.0	0.81	
57	Canarsie, Jamaica Bay.....	40 38	73 53	4 56	Sandy Hook.....	83	+0 59	+1 08	-0.4	0.0	0.89	
58	Coney Island.....	40 34	73 59	4 56	Sandy Hook.....	83	0 00	+0 08	+0.1	0.0	1.00	
Staten Island.												
59	Elm Tree Beacon.....	40 34	74 06	4 56	Sandy Hook.....	83	+0 08	+0 08	+0.1	0.0	1.00	
60	Great Kills.....	40 32	74 08	4 57	Sandy Hook.....	83	+0 02	+0 06	+0.5	0.0	1.09	
61	Princess Bay Light.....	40 30	74 13	4 57	Sandy Hook.....	83	+0 05	+0 12	+0.7	0.0	1.13	
62	Great Bed's Light.....	40 29	74 15	4 57	Sandy Hook.....	83	+0 07	+0 18	+0.8	0.0	1.15	
63	Tottenville, Arthur Kill.....	40 31	74 15	4 57	Sandy Hook.....	83	+0 21	+0 33	+1.0	0.0	1.19	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
1	h. m.	h. m.	h. m.	h. m.	feet.	feet.	feet.	feet.	feet.	feet.	h. m.	feet.	feet.	feet.	West. °
2	10 10	3 42	10 08a	3 54b	5.5	6.7	4.3	5.9	1.1	0.2	.....	1.1	2.8	2.8	9.0
3	10 25	4 10	10 23a	4 22b	6.0	7.2	4.7	6.4	1.1	0.2	.....	1.2	3.0	3.1	9.0
4	9 00	3 06	8 58a	4 19b	4.3	5.2	3.4	4.6	0.9	0.2	.....	1.0	2.2	2.2	9.0
5	11 09	5 22	11 05a	5 30b	7.2	8.5	5.7	8.2	1.0	0.6	9 11	1.1	3.6	4.0	9.0
6	11 06	5 15	11 01a	5 23b	7.2	8.4	5.9	8.2	1.0	0.5	.....	1.1	3.6	4.1	9.0
7	11 05	5 09	11 00a	5 17b	7.2	8.4	5.9	8.2	1.0	0.5	.....	1.1	3.6	4.1	9.0
8	11 06	5 12	11 01a	5 20b	7.2	8.4	5.9	8.2	1.0	0.5	.....	1.1	3.6	4.1	9.0
9	11 07	5 06	11 02a	5 14b	7.3	8.5	6.0	8.4	1.0	0.6	.....	1.1	3.6	4.1	9.0
10	11 08	5 07	11 05a	5 18b	7.6	8.9	6.2	8.5	1.0	0.4	.....	1.1	3.8	4.0	9.0
11	11 06	4 59	11 03a	5 05b	7.6	8.9	6.2	8.5	1.0	0.4	.....	1.1	3.8	4.0	9.5
12	11 07	5 00	11 02a	5 07b	7.3	8.5	6.0	8.2	1.0	0.4	.....	1.1	3.6	3.8	9.5
13	11 04	4 55	10 59a	5 02b	6.7	7.8	5.5	7.4	0.9	0.3	.....	1.0	3.4	3.6	9.5
14	11 25	5 20	11 22a	5 27b	6.1	7.1	5.0	6.8	0.9	0.3	.....	1.0	3.0	3.2	9.5
15	11 01	4 53	10 57a	5 00b	6.6	7.7	5.4	7.3	0.9	0.3	.....	1.0	3.3	3.5	10.0
16	11 02	4 54	10 59a	5 11b	6.2	7.3	5.1	6.9	0.9	0.3	.....	1.0	3.1	3.3	10.0
17	11 41	5 46	11 38a	5 53b	6.6	7.7	5.4	7.3	0.9	0.3	.....	1.0	3.3	3.5	10.0
18	12 10	6 24	12 07a	6 31b	6.5	7.6	5.3	7.2	0.9	0.3	.....	1.0	3.2	3.4	10.0
19	12 20	7 00	12 16a	7 08b	5.0	5.8	4.1	5.7	0.8	0.3	.....	0.9	2.5	2.7	10.0
20	10 55	4 45	10 52a	5 00b	5.0	6.0	4.0	5.6	1.2	0.3	.....	1.3	2.5	2.6	10.0
21	10 51	4 41	10 48a	4 57b	4.6	5.5	3.6	5.1	1.2	0.3	.....	1.2	2.3	2.4	10.0
22	10 47	4 37	10 43a	4 55b	4.2	5.0	3.3	4.7	1.1	0.3	.....	1.2	2.1	2.2	10.0
23	10 44	4 33	10 40a	4 51b	3.8	4.6	3.0	4.3	1.1	0.2	.....	1.1	1.9	1.9	10.0
24	10 30	4 17	10 26a	4 35b	3.4	4.1	2.7	3.8	1.0	0.2	.....	1.0	1.7	1.7	10.5
25	9 54	3 41	9 49a	4 08b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	10.5
26	9 26	3 04	9 21a	3 26b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	11.0
27	9 31	3 27	9 26a	3 50b	2.1	2.5	1.7	2.5	0.8	0.2	.....	0.8	1.1	1.1	11.0
28	9 40	3 35	9 35a	3 57b	2.2	2.6	1.7	2.6	0.8	0.2	.....	0.8	1.1	1.1	10.5
29	10 10	3 58	10 05a	4 15b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	10.5
30	10 18	4 05	10 13a	4 27b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	10.5
31	11 12	5 00	11 07a	5 22b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	10.5
32	11 25	5 16	11 20a	5 40b	2.3	2.8	1.8	2.7	0.8	0.2	.....	0.9	1.2	1.2	10.0
33	12 11	6 10	12 06a	6 33b	2.4	2.9	2.0	2.8	0.9	0.2	.....	0.9	1.2	1.2	10.0
34	10 38	4 36	10 33a	5 00b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.2	10.5
35	10 07	4 00	10 03a	4 20b	3.0	3.6	2.4	3.4	1.0	0.2	.....	1.0	1.5	1.5	10.5
36	9 25	3 21	9 21a	3 41b	2.7	3.2	2.1	3.1	0.9	0.2	.....	0.9	1.4	1.4	10.5
37	9 05	2 55	9 00a	3 17b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	10.5
38	8 40	2 30	8 35a	2 52b	2.2	2.6	1.7	2.6	0.8	0.2	.....	0.8	1.1	1.1	10.5
39	8 20	2 03	8 15a	2 29b	1.9	2.3	1.5	2.3	0.8	0.2	.....	0.8	1.0	1.0	10.5
40	8 10	1 25	8 05a	1 49b	2.0	2.4	1.6	2.4	0.8	0.2	.....	0.8	1.0	1.0	10.5
41	8 00	1 48	7 55a	2 11b	2.1	2.5	1.7	2.5	0.8	0.2	.....	0.8	1.0	1.1	10.5
42	7 54	1 43	7 49a	2 04b	2.3	2.8	1.8	2.7	0.8	0.2	.....	0.8	1.2	1.2	10.0
43	7 48	1 38	7 43a	2 00b	2.5	3.0	2.0	2.9	0.9	0.2	.....	0.9	1.2	1.3	10.0
44	7 42	1 34	7 38a	1 54b	2.7	3.2	2.1	3.1	0.9	0.2	.....	0.9	1.4	1.4	10.0
45	7 36	1 30	7 32a	1 51b	2.9	3.5	2.3	3.3	0.9	0.2	.....	1.0	1.4	1.5	10.0
46	7 30	1 25	7 26a	1 45b	3.1	3.7	2.4	3.5	1.0	0.2	.....	1.0	1.6	1.6	10.0
47	10 55	4 50	10 48a	5 24b	1.1	1.3	0.9	1.4	0.6	0.1	.....	0.6	0.6	0.6	10.0
48	10 38	4 33	10 30a	5 10b	1.0	1.2	0.8	1.3	0.6	0.1	.....	0.6	0.5	0.5	9.5
49	7 25	1 22	7 21a	1 40b	3.3	4.0	2.6	3.7	1.0	0.2	.....	1.0	1.6	1.7	9.5
50	7 19	1 20	7 13a	1 47b	1.8	2.2	1.4	2.1	0.7	0.2	.....	0.8	0.9	0.9	9.5
51	9 50	3 50	9 44a	4 20b	1.2	1.4	0.9	1.5	0.6	0.1	.....	0.6	0.6	0.6	9.5
52	7 25	1 20	7 22a	1 34b	3.6	4.4	2.8	4.0	0.9	0.2	.....	0.9	1.8	1.8	9.0
53	7 30	1 25	7 27a	1 38b	3.8	4.6	3.0	4.2	0.9	0.2	.....	0.9	1.9	1.9	9.0
54	7 36	1 29	7 34a	1 41b	4.1	5.0	3.2	4.5	0.9	0.2	.....	0.9	2.0	2.1	9.0
55	7 42	1 37	7 40a	1 49b	4.0	4.8	3.1	4.4	0.9	0.2	.....	0.9	2.0	2.0	8.5
56	8 18	2 17	8 16a	2 29b	4.1	5.0	3.2	4.5	0.9	0.2	.....	0.9	2.0	2.1	8.5
57	8 15	2 58	8 12a	3 11b	3.8	4.6	3.0	4.2	0.9	0.2	.....	0.9	1.9	1.9	9.0
58	8 34	2 35	8 32a	2 47b	4.2	5.1	3.3	4.6	0.9	0.2	.....	0.9	2.1	2.1	9.0
59	7 35	1 30	7 33a	1 42b	4.7	5.7	3.7	5.1	1.0	0.2	.....	1.0	2.4	2.4	8.5
60	7 38	1 35	7 36a	1 47b	4.7	5.7	3.7	5.1	1.0	0.2	.....	1.0	2.4	2.4	8.5
61	7 36	1 32	7 34a	1 43b	5.1	6.2	4.0	5.5	1.0	0.2	.....	1.0	2.6	2.6	8.5
62	7 39	1 38	7 37a	1 50b	5.3	6.4	4.1	5.7	1.0	0.2	.....	1.1	2.6	2.7	8.5
63	7 41	1 44	7 39a	1 55b	5.4	6.5	4.2	5.8	1.0	0.2	.....	1.1	2.7	2.7	8.5
64	7 55	1 59	7 53a	2 10b	5.6	6.8	4.4	6.0	1.1	0.2	.....	1.1	2.8	2.8	8.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
NEW YORK—continued.											
Staten Island—Continued.											
		North.	West.				Time meridian, 76° W.		Mean Low Water.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Rossville, Arthur Kill.....	40 33	74 13	4 57	Sandy Hook.....	83	+0 49	+ 1 11	+0.7	0.0	1.13
2	Port Richmond, Kill van Kull.....	40 38	74 09	4 57	New York.....	79	+0 08	+ 0 10	+0.4	0.0	1.09
3	New Brighton, Kill van Kull.....	40 39	74 06	4 56	New York.....	79	-0 08	- 0 16	+0.7	0.0	1.02
4	Fort Tompkins Light, The Narrows.....	40 36	74 03	4 56	New York.....	79	-0 23	- 0 23	+0.1	0.0	1.19
New York Harbor.											
5	Bath, Gravesend Bay.....	40 36	74 00	4 56	New York.....	79	-0 36	- 0 36	+0.5	0.0	1.11
6	Fort Hamilton, The Narrows.....	40 36	74 02	4 56	New York.....	79	-0 23	- 0 23	+0.2	0.0	1.05
7	Bay Ridge.....	40 38	74 02	4 56	New York.....	79	-0 15	- 0 19	+0.1	0.0	1.02
8	Gowanus Bay.....	40 40	74 01	4 56	New York.....	79	-0 08	- 0 10	0.0	0.0	1.00
9	NEW YORK, Governors Island.....	40 42	74 01	4 56	New York.....	79	0 00	0 00	0.0	0.0	1.00
NEW YORK AND NEW JERSEY.											
Hudson River.											
10	New York, The Battery.....	40 42	74 01	4 56	New York.....	79	+0 05	+ 0 05	0.0	0.0	1.00
11	Jersey City Ferry, New Jersey.....	40 43	74 02	4 56	New York.....	79	+0 08	+ 0 12	0.0	0.0	1.00
12	Pavonia Ferry, 23d st., New York.....	40 43	74 01	4 56	New York.....	79	+0 09	+ 0 13	0.0	0.0	1.00
13	Weehawken, N. J.....	40 47	74 00	4 56	New York.....	79	+0 20	+ 0 25	-0.2	0.0	0.95
14	New York, West 96th street.....	40 48	73 58	4 56	New York.....	79	+0 26	+ 0 31	-0.2	0.0	0.95
15	Edgewater, N. J.....	40 49	73 59	4 56	New York.....	79	+0 34	+ 0 39	-0.2	0.0	0.95
16	New York, West 131st street.....	40 49	73 58	4 56	New York.....	79	+0 35	+ 0 40	-0.2	0.0	0.95
17	Fort Lee Pier South, N. J.....	40 51	73 58	4 56	New York.....	79	+0 37	+ 0 43	-0.3	0.0	0.93
18	Fort Washington Point, N. Y.....	40 51	73 57	4 56	New York.....	79	+0 38	+ 0 44	-0.3	0.0	0.93
19	Tubby Hook, N. Y.....	40 52	73 56	4 56	New York.....	79	+0 39	+ 0 45	-0.4	0.0	0.91
20	Spuyten Duyvil, N. Y.....	40 53	73 55	4 56	New York.....	79	+0 41	+ 0 47	-0.4	0.0	0.91
21	Huylers Landing, N. J.....	40 56	73 55	4 56	New York.....	79	+0 56	+ 1 02	-0.5	0.0	0.88
22	Yonkers, N. Y.....	40 56	73 54	4 56	New York.....	79	+0 57	+ 1 04	-0.6	0.0	0.86
NEW YORK—continued.											
Hudson River.											
23	Dobbs Ferry.....	41 01	73 53	4 56	New York.....	79	+1 14	+ 1 21	-0.8	0.0	0.82
24	Ossining or Sing Sing.....	41 10	73 52	4 55	New York.....	79	+1 49	+ 2 00	-1.1	0.0	0.75
25	Verplanck Point.....	41 15	73 58	4 56	New York.....	79	+2 19	+ 2 33	-1.2	0.0	0.73
26	Iona or Round Island.....	41 18	73 58	4 56	New York.....	79	+2 30	+ 2 45	-1.2	0.0	0.73
27	West Point Light.....	41 24	73 57	4 56	New York.....	79	+2 50	+ 3 06	-1.1	0.0	0.75
28	Fishkill Landing.....	41 30	73 59	4 56	New York.....	79	+3 15	+ 3 33	-1.1	0.0	0.75
29	Poughkeepsie.....	41 43	73 56	4 56	New York.....	79	+3 54	+ 4 15	-1.2	0.0	0.73
30	Esopus Island.....	41 49	73 57	4 56	New York.....	79	+4 17	+ 4 39	-1.2	0.0	0.73
31	Rondout.....	41 55	73 59	4 56	New York.....	79	+4 39	+ 5 03	-1.1	0.0	0.75
32	Barrytown.....	42 00	73 56	4 56	New York.....	79	+5 07	+ 5 36	-1.1	0.0	0.75
33	Tivoli.....	42 03	73 55	4 56	New York.....	79	+5 24	+ 5 56	-1.0	0.0	0.77
34	Catskill.....	42 13	73 51	4 55	New York.....	79	+6 25	+ 7 09	-1.2	0.0	0.73
35	Stuyvesant.....	42 23	73 47	4 55	New York.....	79	+7 33	+ 8 36	-1.4	0.0	0.68
36	Castleton.....	42 32	73 45	4 55	New York.....	79	+8 33	+ 9 50	-1.7	0.0	0.61
37	Albany.....	42 37	73 45	4 55	New York.....	79	+9 33	+11 04	-2.1	0.0	0.52
NEW JERSEY—continued.											
Newark Bay.											
38	Shooters Island, N. Y.....	40 39	74 10	4 57	New York.....	79	+0 17	+ 0 23	+0.2	0.0	1.05
39	Elizabethport.....	40 39	74 11	4 57	New York.....	79	+0 23	+ 0 36	+0.2	0.0	1.05
40	Passaic Light.....	40 42	74 08	4 57	New York.....	79	+0 38	+ 0 54	+0.3	0.0	1.07
41	Newark, Passaic River.....	40 44	74 10	4 57	New York.....	79	+0 58	+ 1 08	+0.6	0.0	1.14
42	Passaic, Passaic River.....	40 52	74 07	4 56	New York.....	79	+1 41	+ 2 04	-1.1	0.0	0.75
43	Little Ferry, Hackensack River.....	40 51	74 02	4 56	New York.....	79	+1 26	+ 1 47	+0.2	0.0	1.05
44	Hackensack, Hackensack River.....	40 58	74 02	4 56	New York.....	79	+1 36	+ 1 59	+0.1	0.0	1.02
Raritan Bay, etc.											
45	New Brunswick.....	40 29	74 26	4 58	Sandy Hook.....	83	+0 49	+ 1 58	+2.2	0.0	1.45
46	South Amboy.....	40 29	74 16	4 57	Sandy Hook.....	83	+0 08	+ 0 16	+0.8	0.0	1.13
47	Keyport.....	40 27	74 12	4 57	Sandy Hook.....	83	+0 05	+ 0 14	+1.0	0.0	1.19
48	Port Monmouth.....	40 26	74 05	4 56	Sandy Hook.....	83	0 00	+ 0 04	+0.2	0.0	1.02
49	SANDY HOOK, The Horseshoe.....	40 27	74 00	4 56	Sandy Hook.....	83	0 00	0 00	0.0	0.0	1.00
Outer coast.											
50	Seabright.....	40 22	73 58	4 56	Sandy Hook.....	83	-0 10	- 0 15	-0.6	0.0	0.85
51	Long Branch.....	40 18	73 59	4 56	Sandy Hook.....	83	-0 11	- 0 16	-0.2	0.0	0.94
52	Asbury Park.....	40 13	74 00	4 56	Sandy Hook.....	83	-0 12	- 0 17	-0.4	0.0	0.89
53	Seagirt.....	40 08	74 02	4 56	Sandy Hook.....	83	-0 13	- 0 18	-0.6	0.0	0.85
54	Barnegat Inlet.....	39 46	74 06	4 56	New London.....	71	-1 28	- 1 39	-0.2	0.0	0.90

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	8 23	2 37	8 21a	2 50b	5.3	6.4	4.1	5.7	1.0	0.2	.....	1.1	2.6	2.7	8.5
2	8 11	2 15	8 09a	2 28b	4.8	5.8	3.7	5.2	1.0	0.2	.....	1.0	2.4	2.5	8.5
3	7 56	1 50	7 54a	2 03b	5.1	6.2	4.0	5.5	1.0	0.2	.....	1.1	2.6	2.6	8.5
4	7 41	1 38	7 39a	1 51b	4.5	5.4	3.5	4.9	1.0	0.2	.....	1.0	2.2	2.8	8.5
5	7 28	1 30	7 26a	1 42b	4.9	5.9	3.8	5.3	1.0	0.2	.....	1.0	2.4	2.5	8.5
6	7 41	1 38	7 39a	1 51b	4.6	5.5	3.7	4.9	1.0	0.2	.....	1.0	2.3	2.8	8.5
7	7 49	1 47	7 47a	2 00b	4.5	5.4	3.5	4.9	1.0	0.2	.....	1.0	2.2	2.8	8.5
8	7 56	1 56	7 54a	2 10b	4.4	5.3	3.4	4.7	0.9	0.2	.....	1.0	2.2	2.8	8.5
9	8 04	2 05	8 01a	2 18b	4.4	5.3	3.4	4.9	1.0	0.3	7 12	1.0	2.2	2.8	9.0
10	8 09	2 11	8 07a	2 25b	4.4	5.3	3.4	4.7	0.9	0.2	.....	1.0	2.2	2.8	9.0
11	8 12	2 18	8 10a	2 32b	4.4	5.3	3.4	4.7	0.9	0.2	.....	1.0	2.2	2.8	9.0
12	8 13	2 19	8 11a	2 33b	4.4	5.3	3.4	4.7	0.9	0.2	.....	1.0	2.2	2.8	9.0
13	8 24	2 31	8 22a	2 45b	4.2	5.1	3.3	4.5	0.9	0.2	.....	1.0	2.1	2.2	9.0
14	8 30	2 37	8 28a	2 51b	4.2	5.1	3.3	4.5	0.9	0.2	.....	1.0	2.1	2.2	9.0
15	8 38	2 45	8 36a	2 59b	4.2	5.1	3.3	4.5	0.9	0.2	.....	1.0	2.1	2.2	9.0
16	8 39	2 46	8 37a	3 00b	4.2	5.1	3.3	4.5	0.9	0.2	.....	1.0	2.1	2.2	9.0
17	8 41	2 49	8 39a	3 02b	4.1	5.0	3.2	4.4	0.9	0.2	.....	0.9	2.0	2.1	9.0
18	8 42	2 50	8 40a	3 03b	4.1	5.0	3.2	4.4	0.9	0.2	.....	0.9	2.0	2.1	9.0
19	8 43	2 51	8 41a	3 04b	4.0	4.8	3.1	4.3	0.9	0.2	.....	0.9	2.0	2.1	9.0
20	8 45	2 53	8 43a	3 06b	4.0	4.8	3.1	4.3	0.9	0.2	.....	0.9	2.0	2.1	9.0
21	9 00	3 08	8 58a	3 22b	3.9	4.7	3.0	4.2	0.9	0.2	.....	0.9	2.0	2.0	9.0
22	9 01	3 10	8 59a	3 24b	3.8	4.6	3.0	4.1	0.9	0.2	.....	0.9	1.9	2.0	9.0
23	9 18	3 27	9 16a	3 42b	3.6	4.4	2.8	3.9	0.9	0.2	.....	0.9	1.8	1.9	9.5
24	9 54	4 07	9 52a	4 23b	3.3	4.0	2.6	3.6	0.8	0.2	.....	0.9	1.6	1.7	9.5
25	10 23	4 39	10 21a	4 56b	3.2	3.9	2.5	3.5	0.8	0.2	.....	0.8	1.6	1.7	9.0
26	10 84	4 51	10 32a	5 06b	3.2	3.9	2.5	3.5	0.8	0.2	.....	0.8	1.6	1.7	9.0
27	10 54	5 12	10 52a	5 29b	3.3	4.0	2.6	3.6	0.8	0.2	.....	0.9	1.6	1.7	9.5
28	11 19	5 39	11 17a	5 55b	3.3	4.0	2.6	3.6	0.8	0.2	.....	0.9	1.6	1.7	9.0
29	11 58	6 21	11 56a	6 36b	3.2	3.9	2.5	3.5	0.8	0.2	.....	0.8	1.6	1.7	9.5
30	12 21	6 45	12 19a	7 00b	3.2	3.9	2.5	3.5	0.8	0.2	.....	0.8	1.6	1.7	9.5
31	0 18	7 09	0 16b	7 25b	3.3	4.0	2.6	3.6	0.8	0.2	.....	0.9	1.6	1.7	10.0
32	0 46	7 42	0 44b	7 58b	3.3	4.0	2.6	3.6	0.8	0.2	.....	0.9	1.6	1.7	10.0
33	1 03	8 02	1 01b	8 18b	3.4	4.1	2.7	3.7	0.8	0.2	.....	0.9	1.7	1.8	10.0
34	2 03	9 16	2 01b	9 31b	3.2	3.9	2.5	3.5	0.8	0.2	.....	0.8	1.6	1.7	10.0
35	3 13	10 43	3 11b	10 59b	3.0	3.6	2.3	3.3	0.8	0.2	.....	0.8	1.5	1.6	10.0
36	4 13	11 57	4 11b	12 15b	2.7	3.3	2.1	3.0	0.7	0.1	.....	0.8	1.4	1.4	10.5
37	5 13	0 46	5 11b	1 04a	2.3	2.8	1.8	2.6	0.7	0.1	.....	0.7	1.2	1.2	10.5
38	8 20	2 28	8 09a	2 19b	4.6	5.4	3.9	5.5	0.9	0.3	.....	1.3	2.3	2.4	9.0
39	8 26	2 41	8 24a	2 53b	4.6	5.6	3.6	5.0	1.0	0.2	.....	1.0	2.3	2.3	8.5
40	8 41	2 59	8 39a	3 11b	4.7	5.7	3.7	5.1	1.0	0.2	.....	1.0	2.4	2.4	8.5
41	9 01	3 13	8 59a	3 24b	5.0	6.1	3.9	5.4	1.0	0.2	.....	1.0	2.5	2.5	8.5
42	9 45	4 10	9 43a	4 22b	3.3	4.0	2.6	3.6	0.8	0.2	.....	0.9	1.6	1.7	8.5
43	9 30	3 53	9 28a	4 05b	4.6	5.6	3.6	5.0	1.0	0.2	.....	1.0	2.3	2.3	8.5
44	9 40	4 05	9 38a	4 17b	4.5	5.5	3.5	4.9	1.0	0.2	.....	1.0	2.2	2.8	8.5
45	8 22	3 23	8 20a	3 33b	6.8	8.2	5.3	7.0	1.2	0.2	.....	1.2	3.4	3.4	8.5
46	7 42	1 42	7 40a	1 53b	5.4	6.5	4.2	5.8	1.0	0.2	.....	1.1	2.7	2.7	8.5
47	7 39	1 40	7 37a	1 51b	5.6	6.8	4.4	6.0	1.1	0.2	.....	1.1	2.8	2.8	8.5
48	7 35	1 31	7 33a	1 43b	4.8	5.8	3.7	5.2	1.0	0.2	.....	1.0	2.4	2.4	8.5
49	7 35	1 27	7 32a	1 41b	4.7	5.6	3.7	5.0	1.1	0.2	6 51	1.0	2.3	2.3	8.5
50	7 25	1 12	7 23a	1 25b	4.0	4.8	3.1	4.4	0.9	0.2	.....	1.0	2.0	2.0	8.5
51	7 24	1 11	7 22a	1 24b	4.4	5.3	3.4	4.8	1.0	0.2	.....	1.0	2.2	2.2	8.5
52	7 23	1 10	7 21a	1 23b	4.2	5.1	3.3	4.6	0.9	0.2	.....	0.9	2.1	2.1	8.0
53	7 22	1 09	7 20a	1 22b	4.0	4.8	3.1	4.4	0.9	0.2	.....	1.0	2.0	2.0	8.0
54	7 50	1 43	7 46a	2 01b	2.2	2.7	1.7	2.5	0.7	0.1	.....	0.7	1.1	1.1	7.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.					
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		Ratio of range.
			Arc.	Time.			H.W.	L.W.	H.W.	L.W.	
NORTH AMERICA (EAST COAST).—Continued.											
NEW JERSEY.—continued.											
Outer coast.—Continued.		North.	West.					Time meridian, 75° W.		Mean Low Water.	
		°	'	h. m.				h. m.	h. m.	feet.	feet.
1	Kettle Creek, Barnegat Bay.....	40 01	74 07	4 56	New London.....	71	+3 21	+3 23	-1.8	0.0	0.24
2	Toms River, Barnegat Bay.....	39 56	74 10	4 57	New London.....	71	+1 30	+1 31	-1.7	0.0	0.28
3	Cedar Creek, Barnegat Bay.....	39 52	74 08	4 57	New London.....	71	+0 01	-0 07	-1.4	0.0	0.40
4	Barnegat, Barnegat Bay.....	39 45	74 11	4 57	New London.....	71	+0 15	+0 07	-1.6	0.0	0.32
5	New Inlet.....	39 29	74 18	4 57	New London.....	71	-1 29	-1 39	+1.1	0.0	1.40
6	Little Egg Harbor.....	39 35	74 18	4 57	New London.....	71	+0 03	-0 01	-0.1	0.0	0.92
7	Great Bay.....	39 30	74 23	4 58	New London.....	71	-0 47	-0 54	+0.4	0.0	1.12
8	Atlantic City.....	39 22	74 25	4 58	Sandy Hook.....	83	+0 14	+0 16	-0.4	0.0	0.88
9	Absecon Bay.....	39 24	74 29	4 58	Sandy Hook.....	83	+2 26	+2 32	-0.7	0.0	0.83
10	Great Egg Inlet.....	39 18	74 33	4 58	Sandy Hook.....	83	+0 10	+0 12	-0.3	0.0	0.92
11	Corson Inlet.....	39 12	74 39	4 59	Sandy Hook.....	83	+0 08	+0 10	-0.3	0.0	0.91
12	Sea Isle City.....	39 09	74 41	4 59	Sandy Hook.....	83	+0 06	+0 08	-0.4	0.0	0.92
13	Townsend Inlet.....	39 07	74 43	4 59	Sandy Hook.....	83	+0 05	+0 07	-0.4	0.0	0.92
14	Hereford Inlet.....	39 00	74 47	4 59	Sandy Hook.....	83	+0 02	+0 04	-0.3	0.0	0.91
15	Sewells Point, Cold Spring Inlet.....	38 57	74 52	4 59	Sandy Hook.....	83	+0 04	+0 05	-0.2	0.0	0.94
16	Cape May City.....	38 56	74 55	5 00	Sandy Hook.....	83	+0 26	+0 15	-0.1	0.0	0.96
NEW JERSEY, DELAWARE, AND PENNSYLVANIA.											
Delaware Bay.											
17	Cape May Light, N. J.....	38 56	74 58	5 00	Sandy Hook.....	88	+0 45	+0 24	0.0	0.0	0.99
18	Cape Henlopen Light, Del.....	38 47	75 05	5 00	Sandy Hook.....	88	+0 46	+0 27	-0.1	0.0	0.99
19	Delaware B'kwater, east end, Del.....	38 48	75 06	5 00	Sandy Hook.....	88	+0 45	+0 28	-0.2	0.0	0.94
20	Lewes, Del.....	38 47	75 08	5 01	Sandy Hook.....	88	+0 50	+0 34	-0.3	0.0	0.91
21	Slaughter Creek Entrance, Del.....	38 52	75 15	5 01	Sandy Hook.....	88	+0 57	+0 42	-0.2	0.0	0.94
22	Mispillion Creek Light, Del.....	38 57	75 19	5 01	Sandy Hook.....	88	+1 09	+1 12	0.0	0.0	0.99
23	Brandywine Shoal Light, Del.....	38 59	75 07	5 00	Sandy Hook.....	88	+1 59	+0 55	-0.1	0.0	0.95
24	Fourteen-Foot Bank Light, Del.....	39 08	75 11	5 01	Sandy Hook.....	88	+1 12	+1 08	+0.1	0.0	1.09
25	Marcys Landing, N. J.....	39 02	74 56	5 00	Sandy Hook.....	88	+1 04	+0 52	+0.5	0.0	1.05
26	Maurice River Lt., East Pt., N. J.....	39 12	75 02	5 00	Sandy Hook.....	88	+1 29	+1 35	+1.1	0.0	1.21
27	Port Norris, Maurice River, N. J.....	39 14	75 02	5 00	Philadelphia.....	87	-4 34	-5 29	+0.4	0.0	1.06
28	Mauricetown, Maurice River, N. J.....	39 17	74 58	5 00	Philadelphia.....	87	-3 49	-4 19	0.0	0.0	0.98
29	Millville, Maurice River, N. J.....	39 24	75 02	5 00	Philadelphia.....	87	-2 24	-2 41	-0.5	0.0	0.89
30	Egg Island Light, N. J.....	39 11	75 08	5 01	Philadelphia.....	87	-4 58	-6 06	+0.8	0.0	1.13
31	Cross Ledge Light, N. J.....	39 10	75 14	5 01	Philadelphia.....	87	-4 55	-6 06	+0.4	0.0	1.04
32	Murderkill Creek Entrance, Del.....	39 03	75 24	5 02	Philadelphia.....	87	-4 58	-6 02	0.0	0.0	1.06
33	Frederica, Murderkill Creek, Del.....	39 01	75 26	5 02	Philadelphia.....	87	-3 57	-4 37	-2.5	0.0	0.51
34	Lebanon, St. Jones Creek, Del.....	39 06	75 28	5 02	Philadelphia.....	87	-3 52	-4 27	-2.8	0.0	0.47
35	Dover, St. Jones Creek, Del.....	39 09	75 30	5 02	Philadelphia.....	87	-2 52	-3 07	-4.2	0.0	0.19
36	Mahon River Light, Del.....	39 11	75 24	5 02	Philadelphia.....	87	-4 44	-5 47	+0.6	0.0	1.05
37	Fortescue Beach, N. J.....	39 14	75 10	5 01	Philadelphia.....	87	-4 48	-5 35	+0.7	0.0	1.11
38	Dona Landing, Dona River, Del.....	39 13	75 26	5 02	Philadelphia.....	87	-4 24	-4 54	-0.4	0.0	0.92
39	Leipsic River Entrance, Del.....	39 15	75 24	5 02	Philadelphia.....	87	-4 28	-5 13	+0.8	0.0	1.15
40	Leipsic, Del.....	39 15	75 29	5 02	Philadelphia.....	87	-3 22	-3 42	-2.2	0.0	0.57
41	Ben Davis Point, N. J.....	39 17	75 17	5 01	Philadelphia.....	87	-4 28	-5 13	+0.8	0.0	1.15
42	Ship John Shoal Light, N. J.....	39 18	75 23	5 02	Philadelphia.....	87	-4 23	-5 07	+0.8	0.0	1.15
Delaware River.											
43	Sea Breeze, N. J.....	39 19	75 19	5 01	Philadelphia.....	87	-4 23	-5 07	+1.0	0.0	1.17
44	Cohansey Light, N. J.....	39 20	75 22	5 01	Philadelphia.....	87	-4 17	-5 00	+1.1	0.0	1.19
45	Greenwich, Cohansey Creek, N. J.....	39 23	75 19	5 01	Philadelphia.....	87	-3 38	-4 13	+0.6	0.0	1.11
46	Bridgeton, Cohansey Creek, N. J.....	39 26	75 14	5 01	Philadelphia.....	87	-2 33	-2 48	+1.6	0.0	1.30
47	Bombay Hook Point, Del.....	39 19	75 26	5 02	Philadelphia.....	87	-4 11	-4 53	+1.0	0.0	1.17
48	Bombay Hook Light, Del.....	39 22	75 31	5 02	Philadelphia.....	87	-3 52	-4 27	+0.8	0.0	1.15
49	Liston Point, Del.....	39 25	75 32	5 02	Philadelphia.....	87	-3 37	-4 12	+0.8	0.0	1.15
50	Stony Point, N. J.....	39 27	75 31	5 02	Philadelphia.....	87	-3 25	-4 00	+1.0	0.0	1.17
51	Reedy Island Quarantine, Del.....	39 31	75 34	5 02	Philadelphia.....	87	-3 05	-3 38	+1.0	0.0	1.17
52	Salem, Salem Creek, N. J.....	39 34	75 28	5 02	Philadelphia.....	87	-2 47	-2 53	+1.2	0.0	1.21
53	Delaware City, Del.....	39 35	75 35	5 02	Philadelphia.....	87	-2 35	-3 07	+1.1	0.0	1.19
54	New Castle, Del.....	39 39	75 34	5 02	Philadelphia.....	87	-2 14	-2 46	+1.2	0.0	1.21
55	Deep Water Point, N. J.....	39 42	75 31	5 02	Philadelphia.....	87	-2 00	-2 32	+1.2	0.0	1.23
56	Christiana Light, Del.....	39 43	75 31	5 02	Philadelphia.....	87	-1 59	-2 30	+1.1	0.0	1.19
57	Wilmington, Del.....	39 44	75 32	5 02	Philadelphia.....	87	-1 52	-2 17	+0.6	0.0	1.09
58	Edgemoor, Cherry Island Lt., Del.....	39 45	75 30	5 02	Philadelphia.....	87	-1 55	-2 24	+0.8	0.0	1.15
59	Marcus Hook, Pa.....	39 49	75 25	5 02	Philadelphia.....	87	-1 30	-1 57	+1.0	0.0	1.17
60	Chester, Pa.....	39 50	75 22	5 01	Philadelphia.....	87	-1 22	-1 48	+1.1	0.0	1.19
61	Billingsport, N. J.....	39 51	75 15	5 01	Philadelphia.....	87	-0 52	-1 07	+0.8	0.0	1.13
62	Fort Mifflin, Pa.....	39 52	75 13	5 01	Philadelphia.....	87	-0 41	-0 53	+0.6	0.0	1.09

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	
1	0 14	6 45	0 07b	7 26b	0.6	0.7	0.5	0.8	0.3	0.1	.....	0.4	0.3	0.3	8.0
2	10 47	4 52	10 41a	5 27b	0.7	0.9	0.6	0.9	0.4	0.1	.....	0.4	0.4	0.4	8.0
3	9 18	3 14	9 12a	3 44b	1.0	1.2	0.8	1.2	0.5	0.1	.....	0.5	0.5	0.5	8.0
4	9 32	3 28	9 26a	3 58b	0.8	1.0	0.6	1.0	0.4	0.1	.....	0.4	0.4	0.4	7.5
5	7 48	1 42	7 45a	1 57b	3.5	4.2	2.7	3.8	0.8	0.1	.....	0.9	1.7	1.8	7.5
6	9 20	3 20	9 17a	3 37b	2.3	2.8	1.8	2.6	0.7	0.1	.....	0.7	1.2	1.2	7.5
7	8 29	2 26	8 26a	2 42b	2.8	3.4	2.2	3.1	0.8	0.1	.....	0.8	1.4	1.4	7.0
8	7 47	1 41	7 44a	1 54b	4.2	5.1	3.3	4.6	0.9	0.2	.....	1.0	2.1	2.1	7.0
9	9 59	3 57	9 56a	4 10b	3.9	4.7	3.0	4.3	0.9	0.2	.....	0.9	2.0	2.0	7.0
10	7 43	1 37	7 40a	1 50b	4.3	5.2	3.4	4.7	1.0	0.2	.....	1.0	2.1	2.2	7.0
11	7 40	1 34	7 37a	1 48b	4.3	5.2	3.4	4.7	1.0	0.2	.....	1.0	2.2	2.2	6.5
12	7 38	1 32	7 35a	1 47b	4.2	5.1	3.3	4.6	0.9	0.2	.....	1.0	2.1	2.1	6.5
13	7 37	1 31	7 34a	1 46b	4.2	5.1	3.3	4.6	0.9	0.2	.....	1.0	2.1	2.1	6.5
14	7 34	1 28	7 31a	1 42b	4.3	5.2	3.4	4.7	1.0	0.2	.....	1.0	2.2	2.2	6.5
15	7 36	1 29	7 33a	1 43b	4.4	5.3	3.4	4.8	1.0	0.2	.....	1.0	2.2	2.2	6.5
16	7 57	1 38	7 55a	1 51b	4.5	5.4	3.5	4.9	1.0	0.2	.....	1.0	2.2	2.2	6.5
17	8 16	1 47	8 14a	2 00b	4.6	5.6	3.6	5.0	1.0	0.2	.....	1.0	2.3	2.3	6.5
18	8 17	1 50	8 15a	2 03b	4.5	5.4	3.5	4.9	1.0	0.2	.....	1.0	2.2	2.2	6.0
19	8 16	1 51	8 13a	2 05b	4.4	5.3	3.4	4.8	1.0	0.2	.....	1.0	2.2	2.2	6.0
20	8 20	1 56	8 17a	2 10b	4.3	5.2	3.4	4.7	1.0	0.2	.....	1.0	2.2	2.2	6.0
21	8 27	2 04	8 24a	2 18b	4.4	5.3	3.4	4.8	1.0	0.2	.....	1.0	2.2	2.2	6.0
22	8 39	2 34	8 37a	2 47b	4.6	5.6	3.6	5.0	1.0	0.2	.....	1.0	2.3	2.3	6.0
23	8 30	2 18	8 28a	2 31b	4.5	5.4	3.5	4.9	1.0	0.2	.....	1.0	2.2	2.2	6.0
24	8 42	2 30	8 40a	2 43b	4.7	5.7	3.7	5.1	1.0	0.2	.....	1.0	2.4	2.4	6.0
25	8 35	2 15	8 33a	2 28b	5.1	6.2	4.0	5.5	1.0	0.2	.....	1.1	2.6	2.6	6.5
26	9 00	2 58	8 58a	3 10b	5.7	6.9	4.4	6.1	1.1	0.2	.....	1.1	2.8	2.8	6.5
27	9 20	3 30	9 21a	3 18a	5.6	6.4	4.8	6.0	0.9	0.1	.....	1.2	2.8	2.7	6.5
28	10 05	4 40	10 06a	3 27a	5.2	6.0	4.4	5.6	0.9	0.1	.....	1.2	2.6	2.5	6.5
29	11 30	6 18	11 31a	6 05a	4.7	5.4	4.0	5.1	0.9	0.1	.....	1.1	2.4	2.3	6.5
30	8 55	2 50	8 56a	2 38a	6.0	6.9	5.1	6.4	1.0	0.1	.....	1.2	3.0	2.9	6.5
31	8 58	2 52	8 59a	2 40a	5.5	6.7	4.9	6.2	1.0	0.1	.....	1.2	2.9	2.8	6.5
32	8 54	2 55	8 55a	2 42a	5.3	6.1	4.5	5.7	0.9	0.1	.....	1.2	2.6	2.5	6.0
33	9 55	4 20	9 56a	4 03a	2.7	3.1	2.3	3.0	0.7	0.1	.....	0.8	1.4	1.3	6.0
34	10 00	4 30	10 01a	4 11a	2.5	2.9	2.1	2.8	0.6	0.1	.....	0.8	1.2	1.1	6.0
35	11 00	5 50	11 02a	5 21a	1.0	1.2	0.8	1.2	0.4	0.0	.....	0.5	0.5	0.4	6.0
36	9 08	3 10	9 09a	2 58a	5.8	6.7	4.9	6.2	1.0	0.1	.....	1.2	2.9	2.8	6.0
37	9 05	3 23	9 06a	3 11a	5.9	6.8	5.0	6.3	1.0	0.1	.....	1.2	3.0	2.9	6.5
38	9 28	4 03	9 29a	3 50a	4.8	5.5	4.1	5.2	0.9	0.1	.....	1.1	2.4	2.3	6.0
39	9 24	3 44	9 25a	3 32a	6.0	6.9	5.1	6.4	1.0	0.1	.....	1.2	3.0	2.9	6.0
40	10 30	5 15	10 31a	4 58a	3.0	3.4	2.6	3.8	0.7	0.1	.....	0.9	1.5	1.4	6.0
41	9 25	3 45	9 26a	3 33a	6.1	7.0	5.2	6.5	1.0	0.1	.....	1.3	3.0	2.9	6.5
42	9 29	3 50	9 30a	3 38a	6.0	6.9	5.1	6.4	1.0	0.1	.....	1.2	3.0	2.9	6.5
43	9 30	3 51	9 31a	3 39a	6.2	7.1	5.3	6.6	1.0	0.1	.....	1.3	3.1	3.0	6.5
44	9 36	3 58	9 37a	3 46a	6.3	7.2	5.4	6.7	1.0	0.1	.....	1.3	3.2	3.1	6.5
45	10 15	4 45	10 16a	3 32a	5.9	6.8	5.0	6.3	1.0	0.1	.....	1.2	2.9	2.9	6.5
46	11 20	6 10	11 21a	5 54a	6.9	8.0	5.8	7.3	1.1	0.1	.....	1.3	3.4	3.2	6.5
47	9 41	4 04	9 42a	3 52a	6.2	7.1	5.3	6.6	1.0	0.1	.....	1.3	3.1	3.0	6.0
48	10 00	4 30	10 01a	4 18a	6.1	7.0	5.2	6.5	1.0	0.1	.....	1.3	3.0	2.9	6.0
49	10 15	4 45	10 16a	4 33a	6.1	7.0	5.2	6.6	1.0	0.1	.....	1.3	3.0	3.0	6.0
50	10 26	4 57	10 27a	4 45a	6.2	7.1	5.3	6.7	1.0	0.1	.....	1.3	3.1	3.1	6.0
51	10 47	5 19	10 48a	5 07a	6.2	7.2	5.4	6.8	1.0	0.1	.....	1.3	3.1	2.8	6.0
52	11 05	6 04	11 06a	5 52a	6.4	7.4	5.4	6.8	1.0	0.1	.....	1.3	3.2	3.1	6.0
53	11 17	5 50	11 18a	5 38a	6.3	7.2	5.4	6.7	1.0	0.1	.....	1.3	3.2	3.1	6.0
54	11 38	6 11	11 39a	5 59a	6.4	7.4	5.4	6.8	1.0	0.1	.....	1.3	3.2	3.1	6.5
55	11 52	6 25	11 53a	6 13a	6.5	7.5	5.5	6.9	1.0	0.1	.....	1.3	3.2	3.1	6.5
56	11 53	6 27	11 54a	6 15a	6.3	7.2	5.4	6.7	1.0	0.1	.....	1.3	3.2	3.1	6.5
57	12 00	6 40	12 01a	6 28a	5.8	6.7	4.9	6.2	1.0	0.1	.....	1.2	2.9	2.8	6.5
58	11 57	6 33	11 58a	6 21a	6.1	6.8	5.2	6.5	1.0	0.1	.....	1.3	3.0	2.9	6.5
59	12 22	7 00	12 23a	6 48a	6.2	6.9	5.3	6.6	1.0	0.1	.....	1.3	3.1	3.0	6.5
60	0 06	7 10	0 07b	6 58a	6.3	7.0	5.4	6.7	1.0	0.1	.....	1.3	3.2	3.1	7.0
61	0 36	7 51	0 37b	7 40a	6.0	6.7	5.3	6.6	1.0	0.1	.....	1.3	3.0	3.0	7.0
62	0 47	8 05	0 48b	7 53a	5.8	6.6	5.2	6.5	1.0	0.1	.....	1.3	2.9	2.9	7.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of range.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
NEW JERSEY, DELAWARE, AND PENNSYLVANIA—CONT'D.											
Schuylkill River, Pa.											
		North.	West.	h. m.			Time meridian 75° W.		Mean Low Water.		
		° ' "	° ' "				h. m.	h. m.	feet.	feet.	
1	Girard Point .....	39 54	75 12	5 01	Philadelphia .....	87	-0 28	-0 38	+0.8	0.0	1.13
2	Point Breeze Gas Works .....	39 55	75 12	5 01	Philadelphia .....	87	-0 18	-0 33	+0.7	0.0	1.11
3	Grays Ferry .....	39 57	75 12	5 01	Philadelphia .....	87	-0 11	-0 21	+0.4	0.0	1.08
4	Chestnut Street Bridge .....	39 57	75 11	5 01	Philadelphia .....	87	-0 04	-0 08	+0.3	0.0	1.04
5	Wire Bridge and Fairmount Dam ..	39 58	75 11	5 01	Philadelphia .....	87	0 00	0 00	0.0	0.0	1.00
Delaware River—Continued.											
6	League Island Navy-Yard, Pa. ....	39 53	75 11	5 01	Philadelphia .....	87	-0 30	-0 38	+0.7	0.0	1.11
7	Glooucester, N. J., & Gr'wich Pt. Pa.	39 54	75 08	5 01	Philadelphia .....	87	-0 13	-0 21	+0.4	0.0	1.08
8	Philadelphia, Washington av., Pa.	39 56	75 09	5 01	Philadelphia .....	87	-0 06	-0 06	+0.3	0.0	1.04
9	PHILADELPHIA, Chestnut st., Pa. ....	39 57	75 08	5 01	Philadelphia .....	87	0 00	0 00	0.0	0.0	1.00
10	Camden, Coopers Point, N. J. ....	39 57	75 08	5 01	Philadelphia .....	87	+0 03	+0 04	0.0	0.0	1.00
11	Philadelphia, Cramps Ship Yd., Pa.	39 58	75 07	5 00	Philadelphia .....	87	+0 06	+0 07	0.0	0.0	1.00
12	Philadelphia, Allegheny ave., Pa. ....	39 59	75 05	5 00	Philadelphia .....	87	+0 11	+0 11	0.0	0.0	1.00
13	Bridensburg, Pa. ....	40 00	75 04	5 00	Philadelphia .....	87	+0 23	+0 26	+0.2	0.0	1.02
14	Delanco, Rancocas Creek, N. J. ....	40 03	74 57	5 00	Philadelphia .....	87	+0 54	+0 59	+0.4	0.0	1.08
15	Centerton, Rancocas Creek, N. J. ....	40 00	74 52	4 59	Philadelphia .....	87	+1 25	+1 40	-1.2	0.0	0.77
16	Mount Holly, Rancocas Creek, N. J.	40 00	74 48	4 59	Philadelphia .....	87	+2 00	+2 30	-4.0	0.0	0.25
17	Burlington, N. J. ....	40 05	74 51	4 59	Philadelphia .....	87	+1 26	+1 33	+0.4	0.0	1.08
18	Bristol, Pa. ....	40 06	74 51	4 59	Philadelphia .....	87	+1 30	+1 38	+0.4	0.0	1.06
19	Bordentown, N. J. ....	40 09	74 43	4 59	Philadelphia .....	87	+2 30	+2 40	-0.1	0.0	0.96
20	Trenton, N. J. ....	40 13	74 46	4 59	Philadelphia .....	87	+2 55	+3 26	-1.2	0.0	0.77
DELAWARE—continued.											
Outer coast.											
21	Rehoboth .....	38 43	75 04	5 00	Sandy Hook .....	83	+0 39	+0 24	-0.4	0.0	0.89
22	Indian River Inlet .....	38 37	75 05	5 00	Sandy Hook .....	83	+0 33	+0 26	-0.7	0.0	0.83
MARYLAND.											
Outer coast.											
23	Fenwick Island Light.....	38 27	75 03	5 00	Sandy Hook .....	83	+0 21	+0 25	-1.2	0.0	0.72
24	Ocean City .....	38 20	75 05	5 00	Sandy Hook .....	83	+0 16	+0 23	-1.3	0.0	0.70
25	North Beach Life-Saving Station...	38 12	75 09	5 01	Sandy Hook .....	83	+0 15	+0 21	-1.5	0.0	0.66
VIRGINIA.											
Outer coast.											
26	Chincoteague Inlet.....	37 58	75 26	5 02	Old Point Comfort	91	-1 09	-0 41	+0.8	0.0	1.12
27	Franklin City .....	38 00	75 23	5 02	Old Point Comfort	91	+0 35	+1 15	-1.4	0.0	0.44
28	Metomkin Inlet .....	37 41	75 35	5 02	Old Point Comfort	91	-1 02	-0 40	+1.0	0.0	1.39
29	Great Machipongo Inlet.....	37 22	75 43	5 03	Old Point Comfort	91	-1 02	-0 42	+1.5	0.0	1.59
30	Ship Shoal Inlet.....	37 13	75 48	5 03	Old Point Comfort	91	-1 05	-0 46	+1.8	0.0	1.51
Chesapeake Bay.											
31	Cape Charles Light.....	37 07	75 54	5 04	Old Point Comfort	91	-0 42	+0 03	0.0	0.0	1.00
32	Cape Henry Light.....	36 56	76 00	5 04	Old Point Comfort	91	-0 52	-0 33	+0.2	0.0	1.06
33	OLD POINT COMFORT.....	37 00	76 19	5 05	Old Point Comfort	91	0 00	0 00	0.0	0.0	1.00
34	Sewall Point, James River .....	36 57	76 20	5 05	Old Point Comfort	91	+0 05	+0 27	+0.1	0.0	1.04
35	Norfolk Navy-Yard.....	36 50	76 18	5 05	Old Point Comfort	91	+0 21	+0 32	+0.2	0.0	1.08
36	Newport News, James River .....	36 58	76 25	5 06	Old Point Comfort	91	+0 09	+0 31	+0.1	0.0	1.04
37	Newman Point, Nansemond River.....	36 52	76 30	5 06	Old Point Comfort	91	+0 32	+0 50	+0.4	0.0	1.16
38	Suffolk Bridge, Nansemond River.....	36 46	76 33	5 06	Old Point Comfort	91	+1 43	+2 09	+1.3	0.0	1.51
39	Warwick River, James River .....	37 05	76 33	5 06	Old Point Comfort	91	+0 52	+1 19	+0.1	0.0	1.04
40	Tavern Point, James River .....	37 12	76 41	5 07	Old Point Comfort	91	+2 11	+2 45	-0.4	0.0	0.84
41	Jamestown Island, James River ...	37 12	76 46	5 07	Old Point Comfort	91	+2 38	+3 15	-0.6	0.0	0.76
42	Dillard Wharf, James River.....	37 13	76 52	5 07	Old Point Comfort	91	+3 12	+3 51	-0.8	0.0	0.68
43	Gordon Creek, Chickahominy R.....	37 16	76 52	5 07	Old Point Comfort	91	+3 59	+4 48	-0.6	0.0	0.76
44	Graves Landing, Chickahominy R.....	37 23	76 56	5 08	Old Point Comfort	91	+5 58	+6 51	-0.1	0.0	0.96
45	Claremont, James River .....	37 14	76 58	5 08	Old Point Comfort	91	+3 59	+4 45	-0.5	0.0	0.80
46	Brandon Point, James River.....	37 16	77 00	5 08	Old Point Comfort	91	+4 14	+5 08	-0.4	0.0	0.84
47	Dunmore's Wharf, James River.....	37 16	77 03	5 08	Old Point Comfort	91	+4 29	+5 18	-0.2	0.0	0.92
48	Harrison's Landing, James River.....	37 19	77 11	5 09	Old Point Comfort	91	+5 28	+6 28	+0.2	0.0	1.08
49	Jordan Point, James River.....	37 19	77 18	5 09	Old Point Comfort	91	+5 39	+6 38	+0.3	0.0	1.12
50	City Point, James River.....	37 19	77 17	5 09	Old Point Comfort	91	+5 56	+6 58	+0.3	0.0	1.12

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWL.	LWL.	HHWL.	LLWL.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	1 00	8 20	0 58b	8 08a	6.0	6.5	5.4	6.6	1.0	0.1	.....	1.3	3.0	3.0	7.0
2	1 10	8 25	1 00b	8 13a	5.9	6.4	5.3	6.5	1.0	0.1	.....	1.3	3.0	2.9	7.0
3	1 17	8 37	1 16b	8 25a	5.7	6.2	5.1	6.5	1.0	0.1	.....	1.3	2.8	2.9	7.0
4	1 24	8 50	1 23b	8 37a	5.5	6.0	4.9	6.4	1.0	0.1	.....	1.2	2.8	2.9	7.0
5	1 28	8 58	1 27b	8 46a	5.3	5.8	4.7	6.4	1.0	0.1	.....	1.2	2.6	2.9	7.0
6	0 58	8 20	0 59b	8 08a	5.9	6.4	5.3	6.5	1.0	0.1	.....	1.3	3.0	2.9	7.0
7	1 10	8 37	1 11b	8 25a	5.7	6.2	5.2	6.3	1.0	0.1	.....	1.3	2.8	3.0	7.0
8	1 22	8 52	1 19b	8 40a	5.5	6.0	5.0	6.0	1.0	0.1	18 59	1.2	2.8	2.9	7.0
9	1 28	8 58	1 27b	8 49a	5.3	5.5	4.9	5.8	1.1	0.1	14 22	1.1	2.6	2.9	7.0
10	1 31	9 02	1 30b	8 52a	5.3	5.5	4.9	5.8	1.0	0.1	.....	1.2	2.6	2.8	7.0
11	1 35	9 06	1 33b	8 56a	5.3	5.6	4.9	5.8	0.9	0.1	.....	1.2	2.6	2.7	7.0
12	1 40	9 10	1 38b	8 59a	5.3	5.6	4.9	5.7	1.2	0.1	.....	1.2	2.6	2.6	7.0
13	1 52	9 25	1 52b	9 10a	5.4	5.7	5.0	5.5	1.2	0.1	.....	1.2	2.7	2.4	7.0
14	2 23	9 58	2 23b	9 44a	5.7	6.0	5.3	6.1	1.2	0.1	.....	1.2	2.8	2.8	7.5
15	2 55	10 40	2 55b	10 24a	4.1	4.8	3.7	4.4	1.0	0.1	.....	1.0	2.0	1.9	7.0
16	3 30	11 30	3 30b	11 00a	1.3	1.5	1.1	1.5	0.6	0.1	.....	0.6	0.6	0.5	7.5
17	2 56	10 33	2 56b	10 19a	5.7	6.0	5.3	6.0	1.2	0.1	.....	1.2	2.8	2.7	7.5
18	3 00	10 38	3 00b	10 24a	5.6	5.9	5.2	5.9	1.2	0.1	.....	1.2	2.8	2.7	7.5
19	4 00	11 40	4 00b	11 25a	5.1	5.4	4.7	5.4	1.2	0.1	.....	1.2	2.6	2.4	7.5
20	4 25	0 01	4 25b	0 15a	4.1	4.4	3.7	4.4	1.0	0.1	.....	1.0	2.0	1.9	7.5
21	8 10	1 47	8 07a	2 02b	4.2	5.1	3.3	4.6	0.9	0.2	.....	1.0	2.1	2.1	6.0
22	8 04	1 49	8 01a	2 08b	3.9	4.7	3.0	4.3	0.9	0.2	.....	0.9	2.0	2.0	6.0
23	7 52	1 48	7 49a	2 04b	3.4	4.1	2.7	3.7	0.8	0.1	.....	0.9	1.7	1.7	6.0
24	7 47	1 46	7 44a	2 02b	3.3	4.0	2.6	3.6	0.8	0.1	.....	0.9	1.6	1.6	6.0
25	7 45	1 43	7 42a	1 59b	3.1	3.8	2.4	3.4	0.8	0.1	.....	0.8	1.6	1.6	5.5
26	7 38	1 37	7 39a	1 21a	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	5.0
27	9 22	3 33	9 24a	3 11a	1.1	1.8	0.9	1.3	0.4	0.1	.....	0.4	0.6	0.6	5.5
28	7 45	1 38	7 46a	1 24a	3.5	4.2	2.8	3.8	0.8	0.1	.....	0.8	1.8	1.8	5.0
29	7 44	1 35	7 45a	1 23a	4.0	4.8	3.2	4.3	0.8	0.1	.....	0.8	2.0	2.0	4.5
30	7 41	1 31	7 42a	1 18a	3.8	4.6	3.0	4.1	0.8	0.1	.....	0.8	1.9	1.9	4.5
31	8 08	2 19	8 04a	2 02a	2.5	3.0	2.0	2.7	0.7	0.1	.....	0.7	1.2	1.3	4.5
32	7 53	1 43	7 54a	1 27a	2.7	3.2	2.1	2.9	0.7	0.1	.....	0.7	1.4	1.4	4.5
33	8 44	2 15	8 45a	1 59a	2.5	3.0	2.0	2.9	0.7	0.1	8 58	0.7	1.3	1.3	4.5
34	8 49	2 42	8 50a	2 25a	2.6	3.1	2.1	2.8	0.7	0.1	.....	0.7	1.3	1.3	4.5
35	9 05	2 47	9 06a	2 31a	2.7	3.2	2.1	2.9	0.7	0.1	.....	0.7	1.4	1.4	4.5
36	8 52	2 45	8 53a	2 28a	2.6	3.1	2.1	2.8	0.7	0.1	.....	0.7	1.3	1.3	4.5
37	9 15	3 04	9 16a	2 49a	2.9	3.5	2.3	3.1	0.7	0.1	.....	0.7	1.4	1.5	4.5
38	10 26	4 23	10 27a	4 10a	3.8	4.6	3.0	4.1	0.8	0.1	.....	0.8	1.9	1.9	4.5
39	9 35	3 33	9 36a	3 16a	2.6	3.1	2.1	2.8	0.7	0.1	.....	0.7	1.3	1.3	4.5
40	10 53	4 58	10 54a	4 40a	2.1	2.5	1.7	2.3	0.6	0.1	.....	0.6	1.0	1.1	4.5
41	11 20	5 28	10 22a	5 08a	1.9	2.3	1.5	2.1	0.6	0.1	.....	0.6	1.0	1.0	4.0
42	11 54	6 04	11 55a	5 46a	1.7	2.0	1.3	1.9	0.5	0.1	.....	0.5	0.8	0.9	4.0
43	0 16	6 56	0 18b	6 36a	1.9	2.3	1.5	2.1	0.6	0.1	.....	0.6	1.0	1.0	4.0
44	2 14	9 03	2 15b	8 45a	2.4	2.9	1.9	2.6	0.7	0.1	.....	0.7	1.2	1.2	4.0
45	0 15	6 57	0 17b	6 38a	2.0	2.4	1.6	2.2	0.6	0.1	.....	0.6	1.0	1.0	4.0
46	0 30	7 15	0 31b	6 57a	2.1	2.5	1.7	2.3	0.6	0.1	.....	0.6	1.0	1.1	4.0
47	0 45	7 30	0 46b	7 14a	2.3	2.8	1.8	2.5	0.6	0.1	.....	0.6	1.2	1.2	4.0
48	1 43	8 34	1 44b	8 18a	2.7	3.2	2.1	2.9	0.7	0.1	.....	0.7	1.4	1.4	4.0
49	1 54	8 49	1 55b	8 33a	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.0
50	2 11	9 09	2 12b	8 58a	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.0



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
VIRGINIA—continued.											
Chesapeake Bay—Continued.											
		North.	West.				Time meridian, 75° W.		Mean Low Water.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Petersburg, Appomattox River .....	37 14	77 24	5 10	Old Point Comfort	91	+ 8 16	+ 9 51	+0.1	0.0	1.04
2	Shirley, James River .....	37 20	77 16	5 09	Newport	67	+ 7 29	+ 8 59	-0.4	0.0	0.89
3	Tilman's Wf, Curles Neck, Jas. R. ....	37 24	77 18	5 09	Newport	67	+ 8 16	+ 9 58	-0.3	0.0	0.91
4	Varina, James River .....	37 23	77 20	5 09	Newport	67	+ 5 33	+10 12	-0.1	0.0	0.97
5	Dutch Gap, James River .....	37 23	77 22	5 09	Newport	67	+ 8 41	+10 21	0.0	0.0	1.00
6	Cox's Wharf, James River .....	37 23	77 21	5 09	Newport	67	+ 8 45	+10 27	+0.2	0.0	1.06
7	Falling Creek, James River .....	37 26	77 26	5 10	Newport	67	+ 9 10	+10 55	+0.3	0.0	1.09
8	Warwick Bar, James River .....	37 27	77 25	5 10	Newport	67	+ 9 15	+11 08	+0.3	0.0	1.09
9	Richmond Bar, James River .....	37 29	77 25	5 10	Newport	67	+ 9 20	+11 10	+0.5	0.0	1.14
10	Drewry Island, James River .....	37 30	77 25	5 10	Newport	67	+ 9 27	+11 20	+0.8	0.0	1.09
11	Richmond, James River .....	37 31	77 25	5 10	Newport	67	+ 9 37	+11 32	+0.1	0.0	1.03
12	Back River .....	37 06	76 17	5 05	Old Point Comfort	91	- 0 30	0 00	-0.1	0.0	0.96
13	Tue Point, York River .....	37 13	76 23	5 06	Old Point Comfort	91	- 0 04	- 0 02	-0.1	0.0	0.96
14	Quarter Point, York River .....	37 15	76 27	5 06	Old Point Comfort	91	+ 0 19	+ 0 21	-0.2	0.0	0.92
15	Yorktown, York River .....	37 14	76 30	5 06	Old Point Comfort	91	+ 0 27	+ 0 28	-0.1	0.0	0.96
16	Mumford Island, York River .....	37 16	76 31	5 06	Old Point Comfort	91	+ 0 29	+ 0 30	+0.3	0.0	1.12
17	Capahosic, York River .....	37 23	76 38	5 07	Old Point Comfort	91	+ 0 45	+ 0 51	+0.3	0.0	1.12
18	Moody's Wharf, York River .....	37 25	76 42	5 07	Old Point Comfort	91	+ 1 22	+ 1 30	+0.5	0.0	1.20
19	West Point, York River .....	37 32	76 48	5 07	Old Point Comfort	91	+ 1 31	+ 2 08	+1.0	0.0	1.39
20	Cherrystone Light .....	37 15	76 02	5 04	Old Point Comfort	91	- 0 07	+ 0 29	0.0	0.0	1.00
21	Mobjack Bay .....	37 22	76 21	5 05	Old Point Comfort	91	- 0 10	+ 0 18	-0.1	0.0	0.96
22	Mattawoman Creek .....	37 24	76 58	5 04	Old Point Comfort	91	+ 0 40	+ 1 55	-0.4	0.0	0.80
23	Cherry Point, Plankatank River .....	37 31	76 17	5 05	Old Point Comfort	91	+ 1 19	+ 1 58	-1.2	0.0	0.52
24	Harrow's Wharf, Plankatank River .....	37 32	76 24	5 06	Old Point Comfort	91	+ 1 30	+ 2 25	-1.3	0.0	0.48
25	Stingray Point Light .....	37 34	76 16	5 05	Old Point Comfort	91	+ 1 23	+ 1 45	-1.4	0.0	0.44
26	Lawson Bay, Rappahannock River .....	37 37	76 28	5 06	Old Point Comfort	91	+ 1 41	+ 2 28	-1.3	0.0	0.48
27	Carter Creek, Rappahannock River .....	37 39	76 26	5 06	Old Point Comfort	91	+ 2 29	+ 3 19	-1.2	0.0	0.52
28	Orchard Point, Rappahannock R. ....	37 39	76 27	5 06	Old Point Comfort	91	+ 1 43	+ 2 42	-1.2	0.0	0.52
29	Urbana, Rappahannock River .....	37 38	76 34	5 06	Old Point Comfort	91	+ 2 24	+ 3 30	-1.2	0.0	0.52
30	Tappahannock, Rappahannock R. ....	37 56	76 52	5 07	Old Point Comfort	91	+ 4 24	+ 5 33	-0.9	0.0	0.64
31	Saunders's Whf., Rappahannock R. ....	38 05	77 02	5 08	Old Point Comfort	91	+ 6 44	+ 7 58	-1.0	0.0	0.60
32	Port Royal, Rappahannock River .....	38 10	77 11	5 09	Old Point Comfort	91	+ 7 30	+ 8 39	-0.4	0.0	0.84
33	Corbins Neck, Rappahannock R. ....	38 14	77 17	5 09	Old Point Comfort	91	+ 8 57	+10 06	-0.2	0.0	0.92
34	Fredericksburg, Rappahannock R. ....	38 18	77 27	5 10	Old Point Comfort	91	+10 01	+11 11	+0.3	0.0	1.12
35	Pungoteague Creek .....	37 40	75 50	5 03	Old Point Comfort	91	+ 2 11	+ 2 46	-0.6	0.0	0.76
36	Dividing Creek .....	37 44	76 19	5 05	Old Point Comfort	91	+ 2 47	+ 3 28	-1.4	0.0	0.44
37	Great Wicomico River Light .....	37 48	76 15	5 05	Old Point Comfort	91	+ 2 44	+ 3 22	-1.4	0.0	0.44
38	Watts Island Light .....	37 47	75 54	5 04	Old Point Comfort	91	+ 2 39	+ 3 20	-0.6	0.0	0.76
39	Hunting Creek .....	37 48	75 43	5 03	Old Point Comfort	91	+ 3 05	+ 3 46	0.0	0.0	1.00
MARYLAND AND VIRGINIA.											
Potomac River.											
40	Smith Point Light, Va. ....	37 54	76 12	5 05	Old Point Comfort	91	+ 3 51	+ 4 15	-1.1	0.0	0.56
41	Point Lookout Light, Md. ....	38 02	76 19	5 05	Old Point Comfort	91	+ 4 12	+ 4 37	-1.1	0.0	0.56
42	Cann River, Va. ....	37 59	76 28	5 06	Old Point Comfort	91	+ 4 32	+ 4 58	-1.1	0.0	0.56
43	Kinsale, Wicomico River, Va. ....	38 02	76 34	5 06	Old Point Comfort	91	+ 4 45	+ 5 12	-1.0	0.0	0.60
44	St. Mary, St. Mary River, Md. ....	38 11	76 26	5 06	Old Point Comfort	91	+ 5 02	+ 5 33	-0.8	0.0	0.68
45	Piney Point Light, Md. ....	38 08	76 32	5 06	Washington	95	- 6 36	- 6 48	-1.2	0.0	0.55
46	Leonardtown, Breton Bay, Md. ....	38 15	76 41	5 07	Washington	95	- 6 10	- 6 17	-1.2	0.0	0.59
47	Blackstone Island Light, Md. ....	38 12	76 45	5 07	Washington	95	- 6 20	- 6 30	-1.0	0.0	0.62
48	Longster, Wicomico River, Md. ....	38 16	76 50	5 07	Washington	95	- 6 10	- 6 19	-0.9	0.0	0.65
49	Colonial Beach, Va. ....	38 15	76 57	5 08	Washington	95	- 5 56	- 6 01	-1.2	0.0	0.59
50	Lower Cedar Point, Md. ....	38 20	76 58	5 08	Washington	95	- 5 22	- 5 30	-1.0	0.0	0.62
51	Mathias Point, Va. ....	38 24	77 02	5 08	Washington	95	- 4 47	- 4 54	-1.2	0.0	0.55
52	Chapel Point, Port Tobacco R., Va. ....	38 28	77 02	5 08	Washington	95	- 4 30	- 4 36	-1.0	0.0	0.62
53	Nanjemoy Creek, Md. ....	38 25	77 07	5 08	Washington	95	- 4 24	- 4 30	-1.3	0.0	0.52
54	Aquila Creek, Va. ....	38 23	77 19	5 09	Washington	95	- 3 24	- 3 28	-1.2	0.0	0.55
55	Liverpool Point, Md. ....	38 28	77 16	5 09	Washington	95	- 3 13	- 3 17	-1.2	0.0	0.59
56	Quantico Creek, Va. ....	38 32	77 17	5 09	Washington	95	- 2 49	- 2 52	-1.0	0.0	0.62
57	Deep Point, Md. ....	38 34	77 12	5 09	Washington	95	- 2 26	- 2 28	-0.9	0.0	0.66
58	Indian Head, Md. ....	38 36	77 10	5 09	Washington	95	- 2 09	- 2 10	-0.8	0.0	0.69
59	Glymont, Md. ....	38 37	77 08	5 09	Washington	95	- 2 03	- 2 04	-0.6	0.0	0.76
60	Marshall Hall, Md. ....	38 41	77 06	5 08	Washington	95	- 1 29	- 1 29	-0.5	0.0	0.79
61	Mount Vernon, Va. ....	38 42	77 05	5 08	Washington	95	- 1 23	- 1 23	-0.4	0.0	0.83
62	Fort Washington, Md. ....	38 43	77 02	5 08	Washington	95	- 1 05	- 1 05	-0.2	0.0	0.90
63	River View, Md. ....	38 43	77 02	5 08	Washington	95	- 1 03	- 1 02	-0.2	0.0	0.90
64	Alexandria, Va. ....	38 48	77 02	5 08	Washington	95	- 0 36	- 0 41	0.0	0.0	0.97

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean. (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	4 30	12 01	4 31b	11 44a	2.6	3.1	2.1	2.8	0.7	0.1	.....	0.7	1.3	1.3	4.0
2	2 23	9 23	2 24b	9 09a	3.1	3.7	2.5	3.3	0.7	0.1	.....	0.7	1.6	1.6	4.0
3	3 10	10 17	3 11b	10 01a	3.2	3.8	2.5	3.5	0.8	0.1	.....	0.8	1.6	1.6	4.0
4	3 27	10 36	3 28b	10 21a	3.4	4.1	2.7	3.7	0.8	0.1	.....	0.8	1.7	1.7	4.0
5	3 35	10 45	3 36b	10 31a	3.5	4.2	2.8	3.8	0.8	0.1	.....	0.8	1.8	1.8	4.0
6	3 39	10 51	3 40b	10 37a	3.7	4.4	2.9	4.0	0.8	0.1	.....	0.8	1.8	1.9	4.0
7	4 03	11 18	4 04b	11 05a	3.8	4.6	3.0	4.1	0.8	0.2	.....	0.8	1.9	1.9	4.0
8	4 08	11 26	4 09b	11 13a	3.8	4.6	3.0	4.1	0.7	0.3	.....	0.8	1.9	1.9	4.0
9	4 13	11 33	4 14b	11 20a	4.0	4.8	3.2	4.3	0.6	0.4	.....	0.8	2.0	2.0	4.0
10	4 20	11 43	4 21b	11 30a	3.8	4.6	3.0	4.1	0.5	0.5	.....	0.8	1.9	1.9	4.0
11	4 30	11 55	4 31b	11 41a	3.6	4.3	2.8	3.9	0.4	0.6	.....	0.7	1.8	1.8	4.0
12	8 14	2 15	8 15a	1 57a	2.4	2.9	1.9	2.6	0.7	0.1	.....	0.7	1.2	1.2	4.5
13	8 39	2 12	8 40a	1 54a	2.4	2.9	1.9	2.6	0.7	0.1	.....	0.7	1.2	1.2	4.5
14	9 02	2 35	9 03a	2 19a	2.3	2.8	1.8	2.5	0.6	0.1	.....	0.6	1.2	1.2	4.5
15	9 10	2 42	9 11a	2 24a	2.4	2.9	1.9	2.6	0.7	0.1	.....	0.7	1.2	1.2	4.5
16	9 12	2 44	9 13a	2 28a	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.5
17	9 27	3 04	9 28a	2 43a	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.5
18	10 04	3 43	10 05a	3 29a	3.0	3.6	2.4	3.2	0.7	0.1	.....	0.7	1.5	1.5	4.5
19	10 13	4 21	10 14a	4 07a	3.5	4.2	2.8	3.8	0.8	0.1	.....	0.8	1.8	1.8	4.5
20	8 38	2 45	8 39a	2 28a	2.5	3.0	2.0	2.7	0.7	0.1	.....	0.7	1.2	1.2	4.5
21	8 34	2 33	8 35a	2 15a	2.4	2.9	1.9	2.6	0.7	0.1	.....	0.7	1.2	1.2	4.5
22	9 25	4 11	9 27a	3 52a	2.0	2.4	1.6	2.2	0.6	0.1	.....	0.6	1.0	1.0	4.5
23	10 08	4 18	10 09a	3 49a	1.8	1.6	1.0	1.5	0.5	0.1	.....	0.5	0.6	0.6	4.5
24	10 13	4 39	10 15a	4 13a	1.2	1.4	0.9	1.4	0.5	0.1	.....	0.5	0.6	0.6	4.5
25	10 07	4 00	10 11a	3 43a	1.1	1.3	0.9	1.3	0.3	0.1	11 08	0.3	0.6	0.6	4.5
26	10 24	4 42	10 26a	4 16a	1.2	1.4	0.9	1.4	0.5	0.1	.....	0.5	0.6	0.6	4.5
27	11 12	5 33	11 14a	5 09a	1.3	1.6	1.0	1.5	0.5	0.1	.....	0.5	0.6	0.6	4.5
28	10 26	4 56	10 28a	4 32a	1.3	1.6	1.0	1.5	0.5	0.1	.....	0.5	0.6	0.6	4.5
29	11 07	5 44	11 09a	5 20a	1.8	1.6	1.0	1.5	0.5	0.1	.....	0.5	0.6	0.6	4.5
30	0 41	7 46	0 43b	7 27a	1.6	1.9	1.3	1.8	0.5	0.1	.....	0.5	0.8	0.8	4.5
31	3 00	10 05	3 02b	9 45a	1.5	1.8	1.2	1.7	0.5	0.1	.....	0.5	0.8	0.8	4.5
32	3 45	10 50	3 46b	10 32a	2.1	2.5	1.7	2.3	0.6	0.1	.....	0.6	1.0	1.1	4.5
33	5 12	12 17	5 13b	12 01a	2.3	2.8	1.8	2.5	0.6	0.1	.....	0.6	1.2	1.2	4.5
34	6 15	0 56	6 17b	0 40b	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.5
35	10 57	5 03	10 59a	4 43a	1.9	2.3	1.5	2.1	0.6	0.1	.....	0.6	1.0	1.0	5.0
36	11 31	5 43	11 33a	5 21a	1.1	1.3	0.9	1.3	0.4	0.1	.....	0.4	0.6	0.6	4.5
37	11 28	5 37	11 31a	5 57a	1.1	1.3	0.9	1.2	0.3	0.1	12 00	0.3	0.5	0.5	4.5
38	11 24	5 36	11 26a	5 16a	1.9	2.3	1.5	2.1	0.6	0.1	.....	0.6	1.0	1.0	5.0
39	11 51	6 08	11 52a	5 46a	2.5	3.0	2.0	2.7	0.7	0.1	.....	0.7	1.2	1.8	5.0
40	0 10	6 30	0 12b	6 08b	1.4	1.7	1.1	1.6	0.5	0.1	.....	0.5	0.7	0.7	5.0
41	0 31	6 52	0 33b	6 30b	1.4	1.7	1.1	1.6	0.5	0.1	.....	0.5	0.7	0.7	5.0
42	0 50	7 12	0 52b	6 50b	1.4	1.7	1.1	1.6	0.5	0.1	.....	0.5	0.7	0.7	4.5
43	1 03	7 26	1 05b	7 06b	1.5	1.8	1.2	1.7	0.5	0.1	.....	0.5	0.8	0.8	4.5
44	1 20	7 47	1 22b	7 29b	1.7	2.0	1.3	1.9	0.5	0.1	.....	0.5	0.8	0.9	4.5
45	1 15	7 40	1 12b	7 55b	1.6	1.9	1.3	1.8	0.4	0.1	.....	0.4	0.8	0.8	4.5
46	1 40	8 10	1 37b	8 24b	1.7	2.0	1.4	1.9	0.4	0.1	.....	0.4	0.8	0.9	4.5
47	1 30	7 57	1 28b	8 10b	1.8	2.1	1.5	2.0	0.4	0.1	.....	0.4	0.9	0.9	4.5
48	1 40	8 08	1 34b	8 21b	1.9	2.2	1.6	2.1	0.4	0.1	.....	0.4	1.0	1.0	4.5
49	1 53	8 25	1 51b	8 37b	1.7	1.9	1.4	2.0	0.5	0.2	.....	0.4	0.8	0.9	4.5
50	2 27	8 56	2 25b	9 09b	1.8	2.1	1.5	2.0	0.4	0.1	.....	0.4	0.9	0.9	4.5
51	3 02	9 32	2 59b	9 47b	1.6	1.9	1.3	1.8	0.4	0.1	.....	0.4	0.8	0.8	4.5
52	3 19	9 50	3 17b	10 03b	1.8	2.1	1.5	2.0	0.4	0.1	.....	0.4	0.9	0.9	4.5
53	3 25	9 56	3 22b	10 12b	1.5	1.7	1.2	1.7	0.4	0.1	.....	0.4	0.8	0.8	4.5
54	4 24	10 57	4 21b	11 12b	1.6	1.9	1.3	1.8	0.4	0.1	.....	0.4	0.8	0.8	4.5
55	4 35	11 08	4 32b	11 22b	1.7	2.0	1.4	1.9	0.4	0.1	.....	0.4	0.8	0.9	4.5
56	4 59	11 33	4 57b	11 46b	1.8	2.1	1.5	2.0	0.4	0.1	.....	0.4	0.9	0.9	4.5
57	5 22	11 57	5 20b	12 10b	1.9	2.2	1.6	2.1	0.4	0.1	.....	0.4	1.0	1.0	4.5
58	5 39	12 15	5 37b	12 27b	2.0	2.3	1.7	2.2	0.4	0.1	.....	0.4	1.0	1.0	4.5
59	5 45	12 21	5 42b	12 35b	2.2	2.6	1.8	2.4	0.5	0.1	.....	0.5	1.1	1.1	4.5
60	6 20	0 32	6 18b	0 45a	2.3	2.7	1.9	2.5	0.5	0.1	.....	0.5	1.2	1.2	4.5
61	6 26	0 38	6 24b	0 51a	2.4	2.8	2.0	2.6	0.5	0.1	.....	0.5	1.2	1.2	4.5
62	6 44	0 56	6 42b	1 07a	2.6	3.0	2.2	2.8	0.5	0.1	.....	0.5	1.3	1.3	4.5
63	6 46	0 59	6 44b	1 10a	2.6	3.0	2.2	2.8	0.5	0.1	.....	0.5	1.3	1.8	4.5
64	7 13	1 20	7 11b	1 31a	2.8	3.2	2.3	3.0	0.5	0.1	.....	0.5	1.4	1.4	4.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
DISTRICT OF COLUMBIA AND VIRGINIA.											
Potomac River—Continued.											
		North.	West.				Time meridian, 75° W.		Mean Low Water.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Giesboro Point, D. C.	38 51	77 01	5 08	Washington	95	-0 19	-0 17	0.0	0.0	1.00
2	Washington Navy-Yard, D. C.	38 52	76 59	5 08	Washington	95	-0 07	-0 05	+0.2	0.0	1.06
3	Washington, Arsenal Whf., D. C.	38 52	77 01	5 08	Washington	95	-0 13	-0 11	0.0	0.0	1.00
4	WASHINGTON, Seventh street, D. C.	38 52	77 01	5 08	Washington	95	0 00	0 00	0.0	0.0	1.00
5	Long Bridge, south end, Va.	38 58	77 02	5 08	Washington	95	-0 09	-0 08	0.0	0.0	1.00
6	Washington, Aqueduct Br., D. C.	38 54	77 04	5 08	Washington	95	+0 05	+0 07	+0.2	0.0	1.08
7	Mankins Fishery, Va.	38 55	77 06	5 08	Washington	95	+0 16	+0 19	+0.3	0.0	1.07
MARYLAND—continued.											
Chesapeake Bay—Continued.											
8	Shelltown, Pocomoke River	37 59	75 39	5 03	Old Point Comfort	91	+3 49	+4 43	+0.1	0.0	1.04
9	Rehoboth, Pocomoke River	38 03	75 40	5 03	Old Point Comfort	91	+4 46	+5 21	-0.4	0.0	0.84
10	Newtown, Pocomoke River	38 05	75 34	5 02	Old Point Comfort	91	+5 57	+6 15	-0.7	0.0	0.72
11	Mattaponi, Pocomoke River	38 07	75 29	5 02	Old Point Comfort	91	+6 08	+6 43	-0.4	0.0	0.84
12	Snow Hill, Pocomoke River	38 09	75 25	5 02	Old Point Comfort	91	+7 13	+8 02	0.0	0.0	1.00
13	James Island Light	37 58	75 55	5 04	Old Point Comfort	91	+3 59	+4 32	-1.0	0.0	0.60
14	Crisfield	37 59	75 51	5 03	Old Point Comfort	91	+4 01	+4 33	-0.6	0.0	0.76
15	Solomons Lump Light	38 03	76 01	5 04	Old Point Comfort	91	+4 36	+5 12	-0.8	0.0	0.64
16	Holland Island Bar Light	38 04	76 06	5 04	Old Point Comfort	91	+4 04	+4 32	-1.0	0.0	0.60
17	Great Shoals Light, Monie Bay	38 13	75 53	5 04	Old Point Comfort	91	+4 45	+5 28	-1.0	0.0	0.60
18	Vienna, Nanticoke River	38 29	75 49	5 03	Old Point Comfort	91	+6 09	+6 53	-0.7	0.0	0.72
19	Clay Island Light	38 14	75 58	5 04	Old Point Comfort	91	+4 33	+5 15	-1.0	0.0	0.60
20	Hooper Strait Light	38 14	76 04	5 04	Baltimore	99	-5 14	-5 17	+0.5	0.0	1.39
21	Drum Point, Patuxent River	38 19	76 25	5 06	Baltimore	99	-5 17	-5 30	0.0	0.0	1.00
22	Benedict, Patuxent River	38 30	76 40	5 07	Baltimore	99	-4 13	-4 07	+0.3	0.0	1.23
23	Nottingham, Patuxent River	38 43	76 42	5 07	Baltimore	99	-3 03	-2 47	+0.3	0.0	1.23
24	Cove Point Light	38 23	76 23	5 06	Baltimore	99	-4 54	-4 53	+0.2	0.0	1.15
25	James Point	38 32	76 21	5 05	Baltimore	99	-4 10	-4 09	+0.2	0.0	1.15
26	Sharps Island Light	38 38	76 22	5 05	Baltimore	99	-3 56	-4 08	+0.1	0.0	1.07
27	Cambridge, Choptank River	38 34	76 04	5 04	Baltimore	99	-3 13	-2 57	+0.5	0.0	1.39
28	Dover Ferry, Choptank River	38 45	76 00	5 04	Baltimore	99	-2 11	-2 15	+0.7	0.0	1.56
29	Oxford, Tred Avon Creek	38 41	76 10	5 05	Baltimore	99	-2 40	-2 24	+0.5	0.0	1.39
30	Eastern Point, Tred Avon Creek	38 46	76 06	5 04	Baltimore	99	-1 56	-1 35	+0.6	0.0	1.48
31	Fairhaven, Herring Bay	38 45	76 33	5 06	Baltimore	99	-3 19	-3 03	+0.3	0.0	1.23
32	Poplar Island	38 46	76 23	5 06	Baltimore	99	-3 14	-3 33	0.0	0.0	0.99
33	Bloody Point Bar Light	38 50	76 24	5 06	Baltimore	99	-3 04	-3 23	-0.1	0.0	0.90
34	St. Michaels	38 47	76 13	5 05	Baltimore	99	-2 35	-2 14	+0.1	0.0	1.07
35	Dutchman Point, West River	38 52	76 30	5 06	Baltimore	99	-2 51	-3 08	-0.2	0.0	0.82
36	Thomas Point Shoal Light	38 54	76 26	5 06	Baltimore	99	-2 25	-2 40	-0.4	0.0	0.66
37	Mayo Point, South River	38 55	76 30	5 06	Baltimore	99	-2 34	-2 13	-0.5	0.0	0.58
38	Bay Ridge	38 56	76 27	5 06	Baltimore	99	-2 24	-2 38	-0.3	0.0	0.74
39	Annapolis, Severn River	38 58	76 29	5 06	Baltimore	99	-1 55	-2 20	-0.3	0.0	0.74
40	Sandy Point Light	39 01	76 23	5 06	Baltimore	99	-1 34	-1 37	0.0	0.0	0.99
41	Persimmon Point, Magothy River	39 03	76 26	5 06	Baltimore	99	-1 28	-0 58	-0.2	0.0	0.82
42	Love Point Light, Chester River	39 03	76 17	5 05	Baltimore	99	-0 45	-1 10	0.0	0.0	0.92
43	Queenstown, Chester River	38 59	76 10	5 05	Baltimore	99	-0 15	-0 25	+0.4	0.0	1.31
44	Holton Point, Chester River	39 05	76 09	5 05	Baltimore	99	+0 05	-0 09	+0.5	0.0	1.39
45	Melton Point, Chester River	39 08	76 05	5 04	Baltimore	99	+0 19	+0 05	+0.6	0.0	1.48
46	Chestertown, Chester River	39 12	76 04	5 04	Baltimore	99	+0 41	+0 19	+0.8	0.0	1.64
47	Bodkin Point, Patapsco River	39 08	76 26	5 06	Baltimore	99	-0 47	-0 18	-0.2	0.0	0.82
48	Seven-Foot Knoll Light	39 09	76 25	5 06	Baltimore	99	-0 40	-0 38	-0.2	0.0	0.82
49	North Point, Patapsco River	39 12	76 26	5 06	Baltimore	99	-0 24	-0 15	-0.2	0.0	0.82
50	Fort Carroll Light, Patapsco River	39 13	76 31	5 06	Baltimore	99	-0 06	-0 06	-0.1	0.0	0.90
51	Fort McHenry, Patapsco River	39 16	76 35	5 06	Baltimore	99	-0 02	-0 04	+0.1	0.0	1.00
52	BALTIMORE, Fells Point	39 17	76 35	5 06	Baltimore	99	0 00	0 00	0.0	0.0	1.00
53	Tolchester Beach	39 13	76 14	5 05	Baltimore	99	+0 15	+0 01	0.0	0.0	1.00
54	Turkey Point, Middle River	39 18	76 23	5 06	Baltimore	99	+0 20	+0 06	0.0	0.0	1.00
55	Pooles Island Light	39 17	76 16	5 05	Baltimore	99	+0 46	+0 23	0.0	0.0	1.00
56	Howell Point	39 22	76 07	5 04	Baltimore	99	+1 11	+1 00	+0.2	0.0	1.15
57	Betterton, Sassafras River	39 22	76 04	5 04	Baltimore	99	+1 24	+1 30	+0.8	0.0	1.64
58	Frederick, Sassafras River	39 22	75 53	5 04	Baltimore	99	+1 54	+2 20	+1.2	0.0	1.97
59	Elk River Entrance, Reybolds Wharf	39 26	75 59	5 04	Baltimore	99	+1 50	+1 36	+0.9	0.0	1.72
60	Back Creek Entrance, Elk River	39 31	75 52	5 03	Baltimore	99	+2 18	+2 39	+0.9	0.0	1.72
61	Elkton, Elk River	39 36	75 50	5 03	Baltimore	99	+2 53	+3 39	+0.8	0.0	1.23
62	Hayre de Grace, Susquehanna River	39 32	76 05	5 04	Baltimore	99	+3 01	+3 02	+0.8	0.0	1.64
63	Port Deposit, Susquehanna River	39 36	76 06	5 04	Baltimore	99	+3 24	+2 20	+0.9	0.0	1.72

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
h. m.	h. m.	h. m.	h. m.	feet.	feet.	feet.	feet.	feet.	feet.	h. m.	feet.	feet.	feet.	West.	
1	7 30	1 44	7 28b	1 54a	2.9	3.4	2.4	3.1	0.5	0.1		0.5	1.4	1.5	4.5
2	7 42	1 56	7 40b	2 07a	3.0	3.5	2.5	3.2	0.5	0.1	19 21	0.5	1.5	1.5	4.5
3	7 36	1 50	7 34b	2 00a	2.9	3.4	2.4	3.1	0.5	0.1		0.5	1.4	1.5	4.5
4	7 49	2 01	7 47b	2 12a	2.9	3.3	2.4	3.1	0.6	0.2	19 16	0.6	1.4	1.5	4.5
5	7 40	1 58	7 38b	2 03a	2.9	3.4	2.4	3.1	0.5	0.1		0.5	1.4	1.5	4.5
6	7 54	2 08	7 52b	2 19a	3.0	3.5	2.5	3.2	0.5	0.1		0.5	1.5	1.5	4.5
7	8 06	2 20	8 03b	2 30a	3.1	3.6	2.6	3.3	0.5	0.1		0.5	1.6	1.6	4.5
8	0 10	7 00	0 11b	6 44a	2.6	3.1	2.1	2.8	0.7	0.1		0.7	1.3	1.3	5.0
9	1 07	7 38	1 08b	7 21a	2.1	2.5	1.7	2.3	0.6	0.1		0.6	1.0	1.1	5.0
10	2 19	8 33	2 21b	8 14a	1.8	2.2	1.4	2.0	0.6	0.1		0.6	0.9	0.9	5.0
11	2 30	9 01	2 31b	9 44a	2.1	2.5	1.7	2.3	0.6	0.1		0.6	1.0	1.1	5.5
12	3 35	10 20	3 36b	10 03a	2.5	3.0	2.0	2.7	0.7	0.1		0.7	1.2	1.3	5.5
13	0 20	6 48	0 30b	6 30a	1.5	1.8	1.2	1.9	0.6	0.4		0.7	0.8	0.9	5.0
14	0 22	6 50	0 33b	6 32a	1.9	2.3	1.5	2.7	0.8	0.5		0.9	1.0	1.3	5.0
15	0 56	7 28	0 32b	6 31a	1.7	1.8	1.2	1.7	0.5	0.1		0.5	0.8	0.8	5.0
16	0 24	6 48	0 29b	6 33a	1.5	1.7	1.3	1.7	0.4	0.1	14 10	0.4	0.8	0.8	5.0
17	1 05	7 44	1 07b	7 25a	1.5	1.8	1.2	1.7	0.5	0.1		0.5	0.8	0.8	5.0
18	2 30	9 10	2 32b	8 51a	1.8	2.2	1.4	2.0	0.6	0.1		0.6	0.9	0.9	5.5
19	0 53	7 31	0 55b	7 12a	1.5	1.8	1.2	1.7	0.5	0.1		0.5	0.8	0.8	5.0
20	1 22	7 58	1 03b	7 09a	1.7	2.0	1.4	1.9	0.5	0.3		0.6	0.8	0.9	5.0
21	1 17	7 43	1 34b	7 30a	1.2	1.4	1.0	1.4	0.2	0.3	17 14	0.4	0.6	0.7	4.5
22	2 20	9 05	2 32b	8 47a	1.5	1.7	1.3	1.6	0.4	0.3		0.5	0.8	0.8	5.0
23	3 30	10 25	3 42b	10 07a	1.5	1.7	1.3	1.6	0.4	0.3		0.5	0.8	0.8	5.0
24	1 40	8 20	1 53b	8 01a	1.4	1.6	1.2	1.5	0.4	0.3		0.5	0.7	0.7	5.0
25	2 25	9 05	2 48b	8 46a	1.4	1.6	1.2	1.5	0.4	0.3		0.5	0.7	0.7	5.0
26	2 39	9 06	3 01b	8 49a	1.3	1.4	1.1	1.6	0.3	0.4	18 35	0.6	0.6	0.8	5.0
27	3 23	10 18	3 36b	9 59a	1.7	2.0	1.4	1.9	0.5	0.3		0.6	0.8	0.9	5.0
28	4 25	11 00	4 37b	10 43a	1.9	2.2	1.6	2.1	0.5	0.3		0.6	1.0	1.0	5.5
29	3 55	10 50	4 08b	10 31a	1.7	2.0	1.4	1.9	0.5	0.3		0.6	0.8	0.9	5.0
30	4 40	11 40	4 52b	11 22a	1.8	2.1	1.5	2.0	0.5	0.3		0.6	0.9	0.9	5.5
31	3 15	10 10	3 27b	9 52a	1.5	1.7	1.3	1.6	0.4	0.3		0.5	0.8	0.8	5.0
32	3 20	9 40	3 36b	9 17a	1.2	1.4	1.0	1.3	0.4	0.3		0.5	0.6	0.6	5.0
33	3 30	9 50	3 47b	9 25a	1.1	1.3	0.9	1.2	0.4	0.3		0.5	0.6	0.6	5.5
34	4 00	11 00	4 14b	9 39a	1.3	1.5	1.1	1.4	0.4	0.3		0.5	0.6	0.7	5.0
35	3 43	10 05	3 58b	9 43a	1.0	1.2	0.8	1.1	0.4	0.2		0.4	0.5	0.5	5.0
36	4 09	10 33	4 39b	9 48a	0.8	0.9	0.7	1.2	0.5	0.4	19 21	0.6	0.4	0.6	5.0
37	4 00	11 00	4 21b	10 29a	0.7	0.8	0.6	0.8	0.3	0.2		0.4	0.4	0.4	5.0
38	4 10	10 35	4 26b	10 11a	0.9	1.0	0.8	1.0	0.3	0.2		0.4	0.4	0.5	5.0
39	4 39	10 53	4 55b	10 29a	0.9	1.0	0.8	1.0	0.3	0.2		0.4	0.4	0.5	5.0
40	5 00	11 36	5 15b	11 42a	1.2	1.4	1.0	1.3	0.4	0.3		0.5	0.6	0.6	5.5
41	5 06	12 15	5 21b	11 53a	1.0	1.2	0.8	1.1	0.4	0.2		0.4	0.5	0.5	5.0
42	5 50	12 04	6 07b	11 20a	1.1	1.2	0.9	1.6	0.8	0.3	19 40	0.9	0.5	0.7	5.0
43	6 20	0 24	6 32b	0 07b	1.6	1.8	1.3	1.7	0.4	0.3		0.5	0.8	0.8	5.5
44	6 40	0 40	6 53b	0 21b	1.7	2.0	1.4	1.9	0.5	0.3		0.6	0.8	0.9	5.5
45	6 55	0 55	7 07b	0 37b	1.8	2.1	1.5	2.0	0.5	0.3		0.6	0.9	0.9	5.5
46	7 17	1 09	7 28b	0 53b	2.0	2.3	1.7	2.2	0.5	0.3		0.6	1.0	1.0	5.5
47	5 47	0 30	6 02b	0 08b	1.0	1.1	0.8	1.1	0.4	0.2		0.4	0.5	0.5	5.0
48	5 54	0 10	6 47b	-0 20b	1.0	1.1	0.8	1.4	0.7	0.3	20 23	0.7	0.5	0.6	5.0
49	6 10	0 33	6 25b	0 11b	1.0	1.1	0.8	1.1	0.4	0.2		0.4	0.5	0.5	5.0
50	6 28	0 42	6 45b	0 22b	1.1	1.3	0.9	1.2	0.4	0.3		0.5	0.6	0.6	5.0
51	6 32	0 44	6 47b	0 23b	1.2	1.5	1.1	1.4	0.4	0.3		0.5	0.6	0.7	5.0
52	6 34	0 45	6 48b	0 24b	1.2	1.4	1.0	1.5	0.4	0.3	21 12	0.5	0.6	0.7	5.5
53	6 50	0 50	7 05b	0 39b	1.2	1.4	1.0	1.4	0.4	0.3		0.5	0.6	0.6	5.5
54	6 54	0 54	7 09b	0 33b	1.2	1.4	1.0	1.4	0.4	0.3		0.5	0.6	0.6	5.5
55	7 21	1 12	7 34b	0 31b	1.2	1.4	1.0	1.8	0.9	0.3	20 56	0.9	0.6	0.8	5.5
56	7 47	1 50	8 00b	1 31b	1.4	1.6	1.2	1.5	0.4	0.3		0.5	0.7	0.7	5.5
57	8 00	2 20	8 11b	1 04b	2.0	2.3	1.7	2.2	0.5	0.3		0.6	1.0	1.0	5.5
58	8 30	3 10	8 41b	2 54b	2.4	2.7	2.0	2.6	0.5	0.4		0.7	1.2	1.3	5.5
59	8 26	2 26	8 36b	1 55b	2.1	2.5	1.8	2.3	1.1	0.3	22 01	1.1	1.1	1.2	6.0
60	8 55	3 30	9 06b	3 15b	2.1	2.4	1.8	2.3	0.5	0.3		0.6	1.0	1.1	6.0
61	9 30	4 30	9 42b	4 22b	1.5	1.7	1.3	1.6	0.4	0.3		0.5	0.8	0.8	6.0
62	9 37	3 52	9 48b	3 36b	2.0	2.3	1.7	2.2	0.5	0.3		0.6	1.0	1.0	6.0
63	10 00	3 10	10 11b	2 55b	2.1	2.4	1.8	2.3	0.5	0.3		0.6	1.0	1.1	6.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time		Height		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
VIRGINIA—continued.											
Outer Coast.											
		North.	West.	h. m.			Time meridian 75° W.		Mean Low Water.		
		°	°				h. m.	h. m.	feet.	feet.	
1	Virginia Beach.....	36 50	75 58	5 04	Old Point Comfort	91	-0 55	-0 36	+0.3	0.0	1.12
2	False Cape Life-Saving Station .....	36 36	75 53	5 04	Old Point Comfort	91	-1 01	-0 43	+0.2	0.0	1.08
NORTH CAROLINA.											
3	Currituck Beach Light.....	36 23	75 50	5 03	Old Point Comfort	91	-1 09	-0 51	+0.3	0.0	1.12
4	Oregon Inlet.....	35 48	75 32	5 02	Old Point Comfort	91	-1 31	-1 13	+0.2	0.0	1.08
5	New Inlet.....	35 41	75 26	5 02	Old Point Comfort	91	-1 24	-1 07	+0.3	0.0	1.12
6	Hatteras Inlet.....	35 12	75 44	5 03	Old Point Comfort	91	-1 42	-1 26	-0.5	0.0	0.80
7	Ocrakoke Inlet.....	35 04	76 01	5 04	Old Point Comfort	91	-1 45	-1 31	-0.6	0.0	0.76
8	Cape Lookout.....	34 36	76 31	5 06	Charleston	107	-1 10	-1 04	-1.4	0.0	0.71
9	Beaufort.....	34 43	76 39	5 07	Charleston	107	-0 17	-0 15	-2.3	0.0	0.54
10	New River Inlet.....	34 32	77 20	5 09	Charleston	107	-0 56	-0 54	-2.0	0.0	0.62
11	New Topsail Inlet.....	34 22	77 38	5 11	Charleston	107	-0 44	-0 39	-1.1	0.0	0.77
12	Masonboro Inlet.....	34 11	77 49	5 11	Charleston	107	-0 32	-0 28	-1.0	0.0	0.79
13	Carolina Beach.....	34 02	77 53	5 12	Charleston	107	-0 19	-0 16	-0.9	0.0	0.81
Cape Fear River and Branches.											
14	Bald Head, Cape Fear Light.....	33 52	78 00	5 12	Charleston	107	-0 07	-0 06	-0.8	0.0	0.83
15	Fort Caswell.....	33 54	78 01	5 12	Charleston	107	-0 05	-0 02	-0.7	0.0	0.85
16	Southport or Smithville.....	33 55	78 01	5 12	Charleston	107	-0 03	+0 01	-0.6	0.0	0.87
17	Federal Point.....	33 58	77 56	5 12	Charleston	107	+0 24	+0 42	-1.0	0.0	0.79
18	Reeves Point.....	34 00	77 57	5 12	Charleston	107	+0 39	+1 05	-1.2	0.0	0.75
19	Orton Point Post Light.....	34 03	77 56	5 12	Charleston	107	+1 08	+1 41	-1.4	0.0	0.71
20	Campbell Island Post Light.....	34 07	77 56	5 12	Wilmington.	103	-0 52	-1 18	+0.8	0.0	1.32
21	Brunswick River Entrance.....	34 11	77 58	5 12	Wilmington.	103	-0 26	-0 39	+0.4	0.0	1.15
22	Hospital Point Post Light.....	34 12	77 57	5 12	Wilmington.	103	-0 19	-0 29	+0.3	0.0	1.11
23	WILMINGTON.....	34 14	77 57	5 12	Wilmington.	103	0 00	0 00	0.0	0.0	1.00
24	Castle Hayne.....	34 21	77 56	5 12	Wilmington.	103	+2 08	+2 11	-0.9	0.0	0.62
25	Bannermans Bridge.....	34 35	77 46	5 11	Wilmington.	103	-5 48	-6 47	-1.1	0.0	0.53
26	Magnolia Quarry.....	34 52	78 02	5 12	Wilmington.	103	+0 53	+1 11	-0.3	0.0	0.86
27	Point Caswell.....	34 27	78 11	5 13	Wilmington.	103	+4 34	+4 50	-1.6	0.0	0.33
28	White Hall.....	34 30	78 28	5 14	Wilmington.	103	-5 45	-5 37	-1.9	0.0	0.21
SOUTH CAROLINA.											
29	Little River.....	33 51	78 34	5 14	Charleston	107	-0 16	-0 15	-0.3	0.0	0.92
30	North Inlet.....	33 20	79 10	5 17	Charleston	107	-0 18	-0 02	-0.6	0.0	0.87
31	South Island, Winyah Bay.....	33 16	79 14	5 17	Charleston	107	+0 15	+0 26	-1.6	0.0	0.67
32	Georgetown, Winyah Bay.....	33 22	79 17	5 17	Charleston	107	+1 11	+2 25	-1.5	0.0	0.69
33	Cape Romain.....	33 01	79 21	5 17	Charleston	107	-0 29	-0 23	-0.1	0.0	0.96
34	Bull Bay.....	32 57	79 33	5 18	Charleston	107	-0 22	-0 22	-0.4	0.0	0.90
35	North Jetty, Charleston Har. Entr.....	32 44	79 48	5 19	Charleston	107	-0 16	-0 46	+0.1	0.0	1.00
36	Fort Moultrie.....	32 45	79 52	5 19	Charleston	107	-0 10	-0 26	+0.5	0.0	1.08
37	Fort Sumter.....	32 45	79 52	5 19	Charleston	107	-0 09	-0 24	+0.3	0.0	1.04
38	Fort Johnson.....	32 45	79 54	5 20	Charleston	107	-0 05	-0 18	+0.6	0.0	1.10
39	Castle Pinckney Light.....	32 46	79 55	5 20	Charleston	107	-0 01	-0 01	+0.1	0.0	1.00
40	CHARLESTON, Custom-House Whf.....	32 46	79 55	5 20	Charleston	107	0 00	0 00	0.0	0.0	1.00
41	Legareville, Stono River.....	32 40	80 00	5 20	Charleston	107	0 00	-0 15	-0.1	0.0	0.96
42	North Edisto River Entrance.....	32 34	80 11	5 21	Charleston	107	-0 16	-0 26	+0.7	0.0	1.12
43	Bluff Point, Wadmelaw River.....	32 39	80 15	5 21	Charleston	107	+0 16	+0 31	+1.4	0.0	1.25
44	S. Edisto R. Entr., St. Helena Sd.....	32 29	80 20	5 21	Savannah Entr.....	111	+0 59	+0 50	-0.8	0.0	0.89
45	Salt Landing, South Edisto River.....	32 34	80 23	5 22	Savannah Entr.....	111	+1 23	+1 36	-0.7	0.0	0.99
46	Coosaw R., Mining Co.'s Wharf.....	32 31	80 40	5 23	Savannah Entr.....	111	+2 39	+1 50	+0.7	0.0	1.11
47	Hunting I. Light, St. Helena Sd.....	32 23	80 25	5 22	Savannah Entr.....	111	+1 02	+0 48	-0.8	0.0	0.89
48	Bell Buoy, Port Royal Entrance.....	32 08	80 35	5 22	Savannah Entr.....	111	+0 38	+0 34	-0.4	0.0	0.94
49	Hilton Head, Port Royal Sound.....	32 14	80 40	5 23	Savannah Entr.....	111	+1 01	+1 00	-0.5	0.0	0.93
50	Beaufort River Entrance.....	32 17	80 39	5 23	Savannah Entr.....	111	+1 12	+1 02	-0.1	0.0	0.99
51	Dry Docks, Beaufort River.....	32 21	80 40	5 23	Savannah Entr.....	111	+1 40	+1 30	+0.2	0.0	1.04
52	Port Royal, Battery Creek.....	32 22	80 41	5 23	Savannah Entr.....	111	+1 46	+1 46	+0.3	0.0	1.05
53	Beaufort, Beaufort River.....	32 26	80 40	5 23	Savannah Entr.....	111	+1 59	+2 01	+0.5	0.0	1.08
54	Eutaw Creek, Broad River.....	32 24	80 48	5 23	Savannah Entr.....	111	+1 54	+1 55	+0.1	0.0	1.02
55	Braddock Point, Calibogue Sound.....	32 07	80 49	5 23	Savannah Entr.....	111	+1 04	+1 05	0.0	0.0	1.01
GEORGIA.											
56	SAVANNAH ENTR., Tybee I. Light.....	32 02	80 51	5 23	Savannah Entr.....	111	0 00	0 00	0.0	0.0	1.00
57	Fort Pulaski.....	32 02	80 53	5 24	Savannah Entr.....	111	+0 08	+0 23	+0.1	0.0	1.02
58	Oglethorpe, Savannah River.....	32 05	81 02	5 24	Savannah Entr.....	111	+0 49	+1 38	-0.2	0.0	0.98
59	Savannah, Savannah River.....	32 05	81 05	5 24	Savannah Entr.....	111	+1 03	+2 03	-0.3	0.0	0.96
60	Wassaw Sound.....	31 55	80 58	5 24	Savannah Entr.....	111	+0 14	+0 04	0.0	0.0	1.01

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic. (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	7 50	1 40	7 51a	1 24a	2.8	3.3	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.5
2	7 44	1 38	7 45a	1 17a	2.7	3.2	2.1	2.9	0.7	0.1	.....	0.7	1.4	1.4	4.5
3	7 37	1 26	7 38a	1 10a	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.0
4	7 16	1 05	7 17a	0 49a	2.7	3.2	2.1	2.9	0.7	0.1	.....	0.7	1.4	1.4	4.0
5	7 23	1 11	7 24a	0 55a	2.8	3.4	2.2	3.0	0.7	0.1	.....	0.7	1.4	1.4	4.0
6	7 04	0 51	7 06a	0 32a	2.0	2.4	1.6	2.2	0.6	0.1	.....	0.6	1.0	1.0	4.0
7	7 00	0 45	7 06a	0 32a	1.9	2.2	1.5	2.1	0.6	0.1	.....	0.6	1.0	1.0	3.5
8	6 29	0 20	6 34a	0 05a	3.7	4.4	3.0	4.3	0.9	0.3	.....	1.0	1.8	2.0	3.0
9	7 21	1 08	7 27a	0 50a	2.8	3.3	2.3	3.3	0.8	0.3	.....	0.9	1.4	1.5	3.0
10	6 40	0 27	6 45a	0 10a	3.2	3.8	2.6	3.6	0.9	0.2	.....	0.9	1.6	1.7	2.5
11	6 50	0 40	6 55a	0 26a	4.0	4.7	3.2	4.7	1.0	0.4	.....	1.0	2.0	2.2	2.0
12	7 02	0 51	7 07a	0 37a	4.1	4.8	3.3	4.8	1.0	0.4	.....	1.0	2.0	2.2	2.0
13	7 14	1 02	7 19a	0 48a	4.2	4.9	3.4	4.9	1.0	0.4	.....	1.0	2.0	2.2	2.0
14	7 26	1 13	7 31a	0 59a	4.3	5.0	3.5	5.0	1.0	0.4	.....	1.0	2.1	2.3	2.0
15	7 28	1 16	7 33a	1 06a	4.4	5.1	3.6	5.1	1.0	0.4	.....	1.0	2.2	2.3	2.0
16	7 30	1 19	7 34a	1 13a	4.5	5.3	3.7	5.2	1.0	0.4	.....	1.1	2.2	2.4	2.0
17	7 57	2 00	8 00a	1 58a	4.1	4.8	3.3	4.8	1.0	0.4	.....	1.0	2.0	2.2	2.0
18	8 12	2 23	8 14a	2 25a	3.9	4.6	3.1	4.6	1.0	0.4	.....	1.0	2.0	2.1	2.0
19	8 36	2 59	8 37a	3 05a	3.7	4.4	3.0	4.3	0.9	0.3	.....	1.0	1.8	2.0	2.0
20	9 00	3 36	9 00a	3 46a	3.2	3.5	2.8	3.7	1.0	0.2	.....	1.0	1.6	1.8	2.0
21	9 26	4 15	9 25a	4 30a	2.8	3.1	2.5	3.2	0.9	0.1	.....	0.9	1.4	1.6	2.0
22	9 38	4 25	9 31a	4 42a	2.7	3.0	2.4	3.1	0.9	0.1	.....	0.9	1.4	1.5	2.0
23	9 52	4 54	9 50a	5 16a	2.4	2.7	2.2	2.8	0.9	0.1	9 45	0.9	1.2	1.2	2.0
24	12 00	7 05	11 57b	7 34a	1.5	4.7	1.3	1.8	0.7	0.1	.....	0.7	0.8	0.9	2.0
25	4 05	11 40	4 02b	12 09a	1.3	1.4	1.2	1.6	0.6	0.1	.....	0.6	0.6	0.8	2.0
26	10 45	6 05	10 43b	6 29b	2.1	2.3	1.9	2.5	0.8	0.1	.....	0.8	1.0	1.3	2.0
27	2 00	9 33	1 56b	10 11a	0.8	0.9	0.7	1.1	0.5	0.1	.....	0.5	0.4	0.5	1.5
28	4 05	11 40	4 00b	12 30a	0.5	0.6	0.4	0.7	0.4	0.0	.....	0.4	0.2	0.3	1.5
29	7 15	1 01	7 19a	0 48a	4.8	5.7	3.9	5.5	1.1	0.4	.....	1.1	2.4	2.5	1.5
30	7 10	1 11	7 15a	0 58a	4.5	5.3	3.7	5.2	1.0	0.4	.....	1.1	2.2	2.4	1.0
31	7 43	1 39	7 49a	1 28a	3.5	4.1	2.8	4.1	0.9	0.3	.....	1.0	1.8	1.9	1.0
32	8 39	3 38	8 44a	1 22a	3.6	4.3	2.9	4.2	0.9	0.3	.....	1.0	1.8	1.9	0.5
33	6 59	0 50	7 03a	0 38a	5.0	5.9	4.1	5.7	1.1	0.4	.....	1.1	2.5	2.7	0.5
34	7 05	0 50	7 09a	0 37a	4.7	5.6	3.8	5.4	1.0	0.4	.....	1.1	2.4	2.5	0.5
35	7 10	0 25	7 14a	0 13a	5.2	6.1	4.2	5.9	1.1	0.4	.....	1.2	2.6	2.8	0.5
36	7 16	0 45	7 20a	0 33a	5.6	6.6	4.5	6.3	1.1	0.4	.....	1.2	2.8	3.0	0.5
37	7 17	0 47	7 21a	0 35a	5.4	6.4	4.4	6.1	1.1	0.4	.....	1.2	2.7	2.9	0.5
38	7 20	0 52	7 24a	0 40a	5.7	6.7	4.6	6.4	1.1	0.4	.....	1.2	2.8	3.0	0.5
39	7 24	1 09	7 28a	0 56a	5.2	6.1	4.2	5.9	1.1	0.4	.....	1.2	2.6	2.8	0.5
40	7 25	1 10	7 29a	0 56a	5.2	6.1	4.2	5.8	1.2	0.3	8 27	1.2	2.6	2.7	0.5
41	7 25	0 53	7 29a	0 45a	5.0	5.9	4.1	5.7	1.1	0.4	.....	1.1	2.5	2.7	0.0
42	7 08	0 53	7 12a	0 43a	5.8	6.8	4.7	6.6	1.2	0.4	.....	1.2	2.9	3.1	0.0
43	7 40	1 40	7 44a	1 29a	6.5	7.7	5.3	7.3	1.2	0.5	.....	1.3	3.2	3.5	0.0
44	7 12	0 57	7 14a	0 47a	6.0	7.0	4.9	6.5	1.1	0.3	.....	1.1	3.0	3.0	0.0
45	7 35	1 42	7 37a	1 32a	6.1	7.1	4.9	6.6	1.1	0.3	.....	1.1	3.0	3.0	0.0
46	8 50	2 35	8 52a	2 46a	7.5	8.8	6.1	8.0	1.2	0.3	.....	1.3	3.8	3.8	0.0
47	7 14	0 54	7 16a	0 44a	6.0	7.0	4.9	6.5	1.1	0.3	.....	1.1	3.0	3.0	0.0
48	6 50	0 40	6 52a	0 29a	6.4	7.5	5.2	6.8	1.1	0.3	.....	1.2	3.2	3.2	0.0
49	7 12	1 05	7 14a	0 54a	6.3	7.4	5.1	6.8	1.1	0.3	.....	1.2	3.2	3.2	0.0
50	7 23	1 07	7 25a	0 57a	6.7	7.8	5.4	7.2	1.2	0.3	.....	1.2	3.4	3.4	0.0
51	7 51	1 35	7 53a	1 25a	7.0	8.2	5.7	7.5	1.2	0.3	.....	1.2	3.5	3.5	0.5 E.
52	7 57	1 51	7 59a	1 41a	7.1	8.3	5.8	7.6	1.2	0.3	.....	1.2	3.6	3.6	0.5 E.
53	8 10	2 06	8 12a	1 57a	7.3	8.5	5.9	7.8	1.2	0.3	.....	1.2	3.6	3.7	0.5 E.
54	8 05	2 00	8 07a	1 50a	6.9	8.1	5.6	7.4	1.2	0.3	.....	1.2	3.4	3.5	0.5 E.
55	7 15	1 10	7 17a	1 00a	6.8	8.0	5.5	7.3	1.2	0.3	.....	1.2	3.4	3.4	0.5 E.
56	7 11	1 05	7 14a	1 16a	6.8	8.0	5.4	7.2	1.2	0.2	7 59	1.2	3.4	3.4	0.5
57	7 18	1 27	7 20a	1 17a	6.9	8.1	5.6	7.4	1.2	0.3	.....	1.2	3.4	3.5	0.5
58	7 59	2 42	8 01a	2 32a	6.6	7.7	5.4	7.1	1.2	0.3	.....	1.2	3.3	3.3	0.5
59	8 13	3 07	8 15a	2 57a	6.5	7.6	5.3	7.0	1.2	0.3	.....	1.2	3.2	3.3	0.5
60	7 24	1 08	7 26a	0 58a	6.8	8.0	5.5	7.3	1.2	0.3	.....	1.2	3.4	3.4	0.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
GEORGIA—continued.											
		North.	West.				Time meridian, 90° W.		Mean Low Water.		
		°	'	h. m.			h. m.	h. m.	feet.	feet.	
1	Ossabaw Sound.....	31 50	81 05	5 24	Savannah Entr...	111	+0 09	+0 25	-0.2	0.0	0.98
2	St. Catherine Sound.....	31 40	81 09	5 25	Savannah Entr...	111	+0 26	+0 28	+0.6	0.0	1.09
3	National Quar. Sta., Sapelo Sound.....	31 32	81 12	5 25	Savannah Entr...	111	+0 18	+0 04	+0.5	0.0	1.04
4	Sapelo Light, Doboy Sound.....	31 23	81 17	5 25	Savannah Entr...	111	+0 21	+0 21	+0.4	0.0	1.07
5	Atwood River, Doboy Sound.....	31 27	81 21	5 25	Savannah Entr...	111	+0 31	+0 31	+0.4	0.0	1.07
6	Altamaha Sound.....	31 18	81 18	5 25	Savannah Entr...	111	+0 31	+0 41	-0.4	0.0	0.95
7	Brunswick Outer Bar.....	31 06	81 19	5 25	Savannah Entr...	111	+0 09	+0 10	-0.5	0.0	0.93
8	St. Simon Light.....	31 08	81 24	5 26	Savannah Entr...	111	+0 22	+0 25	-0.4	0.0	0.95
9	Brunswick.....	31 09	81 30	5 26	Savannah Entr...	111	+0 52	+0 55	-0.1	0.0	0.99
10	Jekyl Island.....	31 04	81 25	5 26	Savannah Entr...	111	+0 43	+0 38	0.0	0.0	1.01
11	St. Andrew Sound.....	31 00	81 28	5 26	Savannah Entr...	111	+0 33	+0 36	0.0	0.0	1.01
FLORIDA.											
Eastern coast.											
12	Fernandina, Fort Clinch.....	30 41	81 28	5 26	Fernandina.....	115	-0 14	-0 08	0.0	0.0	0.98
13	FERNANDINA, Dade St.....	30 41	81 28	5 26	Fernandina.....	115	0 00	0 00	0.0	0.0	1.00
14	Nassau Sound.....	30 31	81 27	5 26	Fernandina.....	115	-0 19	-0 10	-0.6	0.0	0.90
15	Fort George Inlet.....	30 26	81 26	5 26	Fernandina.....	115	-0 17	-0 02	-0.6	0.0	0.90
16	St. Johns River, South Jetty.....	30 24	81 25	5 26	Fernandina.....	115	-0 24	-0 09	-1.4	0.0	0.77
17	Mayport, St. Johns River.....	30 23	81 26	5 26	Fernandina.....	115	-0 22	-0 03	-1.8	0.0	0.70
18	Hopkins, St. Johns River.....	30 23	81 30	5 26	Old Point Comfort.....	91	-1 20	-0 56	+0.5	0.0	1.20
19	Dame Point, St. Johns River.....	30 23	81 33	5 26	Old Point Comfort.....	91	-0 53	-0 32	-0.7	0.0	0.72
20	Reddie Point, St. Johns River.....	30 23	81 37	5 26	Old Point Comfort.....	91	-0 46	-0 24	-1.1	0.0	0.56
21	Jacksonville, St. Johns River.....	30 20	81 39	5 27	Old Point Comfort.....	91	-0 29	-0 12	-1.5	0.0	0.40
22	Mandarin, St. Johns River.....	30 10	81 39	5 27	Old Point Comfort.....	91	+0 59	+1 08	-1.8	0.0	0.28
23	Greencove Springs, St. Johns River.....	29 59	81 41	5 27	Old Point Comfort.....	91	+2 19	+2 18	-1.9	0.0	0.24
24	Tocoi, St. Johns River.....	29 51	81 33	5 26	Old Point Comfort.....	91	+3 43	+3 32	-1.7	0.0	0.32
25	Palatka, St. Johns River.....	29 39	81 38	5 27	Old Point Comfort.....	91	+5 21	+5 08	-1.4	0.0	0.44
26	St. Augustine Light.....	29 53	81 17	5 25	Charleston.....	107	-0 08	-0 05	-0.6	0.0	0.87
27	St. Augustine.....	29 54	81 18	5 25	Charleston.....	107	+0 01	+0 06	-0.9	0.0	0.81
28	Matanzas Inlet.....	29 42	80 13	5 25	Old Point Comfort.....	91	-1 48	-1 09	0.0	0.0	1.00
29	Mosquito Inlet Light.....	29 05	80 56	5 24	Old Point Comfort.....	91	-1 41	-1 08	-0.2	0.0	0.92
30	Cape Canaveral Light.....	28 28	80 32	5 22	Charleston.....	107	-0 23	-0 16	-0.1	0.0	0.96
31	Indian River Inlet.....	27 30	80 18	5 21	Key West.....	119	-1 56	-1 17	+0.5	0.0	1.42
32	Jupiter Inlet Light.....	26 57	80 05	5 20	Key West.....	119	-1 27	-0 43	+0.3	0.0	1.25
33	Lake Worth Inlet.....	26 48	80 02	5 20	Key West.....	119	-1 24	-0 39	+0.4	0.0	1.33
34	Hillsboro Inlet.....	26 15	80 05	5 20	Key West.....	119	-1 07	-0 20	+0.5	0.0	1.42
35	Miami, Key Biscayne Bay.....	25 46	80 11	5 21	Key West.....	119	+0 04	+1 14	-0.1	0.0	0.92
Florida Reefs.											
36	Cape Florida, Key Biscayne.....	25 40	80 09	5 21	Key West.....	119	-1 02	-0 13	+0.5	0.0	1.41
37	Fowey Rocks Light.....	25 35	80 06	5 20	Key West.....	119	-1 07	-0 27	+0.8	0.0	1.65
38	Point Elizabeth, Key Largo.....	25 14	80 19	5 21	Key West.....	119	-1 01	-0 24	+1.1	0.0	1.42
39	Carysport Reef Light.....	25 13	80 13	5 21	Key West.....	119	-1 05	-0 34	+0.9	0.0	1.74
40	Aligator Reef Light.....	24 51	80 37	5 22	Key West.....	119	-1 03	-0 41	+0.8	0.0	1.65
41	Indian Key.....	24 53	80 41	5 23	Key West.....	119	-1 01	-0 42	+0.6	0.0	1.49
42	Tom Harbor Keys.....	24 46	80 56	5 24	Key West.....	119	-1 11	-0 53	+0.4	0.0	1.32
43	Bamboo Key.....	24 45	81 00	5 24	Key West.....	119	+5 21	+6 23	0.0	0.0	1.08
44	Knights Key.....	24 42	81 07	5 24	Key West.....	119	-0 56	-0 31	+0.2	0.0	1.16
45	Sombrero Key Light.....	24 38	81 07	5 24	Key West.....	119	-0 59	-0 34	+0.3	0.0	1.24
46	Bahia Honda, south side.....	24 40	81 16	5 25	Key West.....	119	-1 06	-0 36	+0.3	0.0	1.24
47	American Shoal Light.....	24 31	81 31	5 26	Key West.....	119	-0 49	-0 24	+0.4	0.0	1.32
48	Sand Key Light.....	24 27	81 53	5 28	Key West.....	119	-0 39	-0 15	0.0	0.0	0.99
49	Key West, Fort Taylor.....	24 33	81 49	5 27	Key West.....	119	0 00	0 00	0.0	0.0	1.00
50	Northwest Passage Light.....	24 37	81 54	5 28	Key West.....	119	+2 00	+2 30	+1.3	0.0	2.09
51	Marquesas Keys.....	24 33	82 07	5 28	Key West.....	119	-0 09	+0 21	0.0	0.0	1.00
52	Rebecca Shoal Light.....	24 35	82 35	5 30	Key West.....	119	+0 13	+0 39	-0.1	0.0	0.92
53	Tortugas Harbor Light.....	24 38	82 53	5 32	Key West.....	119	+0 29	+0 50	-0.1	0.0	0.92
54	Content Keys.....	24 48	81 30	5 26	Key West.....	119	+2 07	+3 00	+2.4	0.0	3.00
Gulf of Mexico.											
55	Cape Sable, East Cape.....	25 07	81 05	5 24	Key West.....	119	+4 07	+4 47	+1.7	0.0	2.42
56	Lossmans River.....	25 32	81 12	5 25	Key West.....	119	+3 49	+4 30	+2.5	0.0	3.08
57	Pavillon Key.....	25 42	81 21	5 25	Key West.....	119	+3 39	+4 17	+2.3	0.0	2.92
58	Round Key.....	25 50	81 31	5 26	Key West.....	119	+3 29	+4 09	+2.2	0.0	2.83
59	Cape Romano.....	25 51	81 41	5 27	Key West.....	119	+3 20	+4 00	+1.4	0.0	2.17

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn.).	Spring (Sg.).	Neap (Np.).	Great tropic (Gc.).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	7 19	1 29	7 21a	1 19a	6.6	7.7	5.4	7.1	1.2	0.3	.....	1.2	3.3	3.3	0.5
2	7 39	1 35	7 39a	1 24a	7.4	8.5	5.9	7.8	1.2	0.3	.....	1.2	3.7	3.7	0.5
3	7 30	1 28	7 28a	1 34a	7.3	8.6	5.8	7.7	0.7	0.2	6 39	0.7	3.6	3.7	1.0
4	7 30	1 24	7 32a	1 14a	7.2	8.4	5.8	7.7	1.2	0.3	.....	1.2	3.6	3.6	1.0
5	7 40	1 34	7 42a	1 24a	7.2	8.4	5.8	7.7	1.2	0.3	.....	1.2	3.6	3.6	1.0
6	7 40	1 44	7 42a	1 33a	6.4	7.5	5.2	6.9	1.1	0.3	.....	1.2	3.2	3.2	1.0
7	7 18	1 13	7 20a	1 07a	6.3	7.5	5.2	6.7	1.2	0.3	.....	1.2	3.1	3.1	1.0
8	7 30	1 27	7 33a	1 13a	6.4	7.5	5.3	6.7	1.1	0.2	.....	1.2	3.2	3.1	1.0
9	8 00	1 57	8 02a	1 47a	6.7	7.8	5.4	7.2	1.2	0.3	.....	1.2	3.4	3.4	1.0
10	7 51	1 40	7 53a	1 30a	6.8	8.0	5.5	7.3	1.2	0.3	.....	1.2	3.4	3.4	1.0
11	7 41	1 38	7 43a	1 28a	6.8	8.0	5.5	7.3	1.2	0.3	.....	1.2	3.4	3.4	1.0
12	7 46	1 34	7 48a	1 22a	5.9	7.0	4.8	6.4	1.2	0.2	8 25	1.2	3.0	3.0	1.0
13	8 00	1 42	8 02a	1 30a	6.0	7.0	4.9	6.4	1.2	0.3	8 46	1.2	3.0	3.0	1.0
14	7 41	1 32	7 43a	1 20a	5.4	6.3	4.4	5.8	1.1	0.2	.....	1.1	2.7	2.7	1.0
15	7 43	1 40	7 45a	1 28a	5.4	6.3	4.4	5.8	1.1	0.2	.....	1.1	2.7	2.7	1.0
16	7 36	1 33	7 38a	1 21a	4.6	5.4	3.7	4.9	1.0	0.2	.....	1.0	2.3	2.3	1.0
17	7 38	1 39	7 47a	1 28a	4.2	5.0	3.5	4.6	1.0	0.2	.....	1.0	2.1	2.2	1.0
18	8 02	1 57	8 04a	1 40a	3.0	3.5	2.4	3.3	0.9	0.1	.....	0.9	1.5	1.5	1.0
19	8 29	2 21	8 32a	2 02a	1.8	2.1	1.5	2.0	0.6	0.1	.....	0.6	0.9	0.9	1.0
20	8 36	2 29	8 40a	2 05a	1.4	1.6	1.1	1.6	0.6	0.1	.....	0.6	0.7	0.7	1.0
21	8 52	2 40	8 56a	2 22a	1.0	1.2	0.8	1.2	0.5	0.1	.....	0.5	0.5	0.5	1.0
22	10 20	3 55	10 24a	3 38a	0.7	0.9	0.6	0.9	0.4	0.1	.....	0.4	0.4	0.4	1.0
23	11 40	5 10	11 44a	4 55a	0.6	0.8	0.5	0.8	0.3	0.1	.....	0.3	0.4	0.4	1.0
24	0 40	6 25	0 44a	6 08a	0.8	1.0	0.7	1.1	0.4	0.1	.....	0.4	0.4	0.4	1.0
25	2 17	8 00	2 22a	7 42a	1.1	1.3	0.9	1.3	0.5	0.1	.....	0.5	0.6	0.6	1.0
26	8 12	2 00	8 14a	1 47a	4.5	5.3	3.6	4.8	1.0	0.2	.....	1.0	2.2	2.3	1.0
27	8 21	2 11	8 23a	1 57a	4.2	5.0	3.4	4.5	1.0	0.2	.....	1.0	2.1	2.1	1.0
28	7 35	1 45	7 38a	1 27a	2.5	3.0	2.0	2.7	0.7	0.1	.....	0.8	1.2	1.3	1.0
29	7 43	1 47	7 46a	1 29a	2.3	2.7	1.9	2.5	0.7	0.1	.....	0.7	1.2	1.2	1.0
30	8 00	1 52	8 02a	1 39a	5.0	5.9	4.0	5.4	1.1	0.2	.....	1.1	2.5	2.5	1.0
31	7 30	1 25	7 33a	1 05a	1.7	2.0	1.4	1.9	0.6	0.1	.....	0.6	0.8	0.9	1.0
32	8 00	2 00	8 04a	1 37a	1.5	1.8	1.2	1.7	0.6	0.1	.....	0.6	0.8	0.8	1.5
33	8 03	2 04	8 06a	1 42a	1.6	1.9	1.3	1.8	0.6	0.1	.....	0.6	0.8	0.8	1.5
34	8 20	2 23	8 23a	2 03a	1.7	2.0	1.4	1.9	0.6	0.1	.....	0.6	0.8	0.9	1.5
35	9 30	3 56	9 34a	3 30a	1.1	1.3	0.9	1.3	0.5	0.1	.....	0.5	0.6	0.6	1.5
36	8 24	2 29	8 26b	3 10a	1.7	2.2	1.1	2.2	1.0	0.3	.....	1.1	0.8	1.0	1.5
37	8 20	2 16	8 09b	2 54a	2.0	2.6	1.3	2.6	1.1	0.4	.....	1.2	1.0	1.2	1.5
38	8 25	2 18	8 14b	2 54a	2.3	2.9	1.5	2.9	1.2	0.4	.....	1.3	1.2	1.3	1.5
39	8 21	2 08	8 10b	2 44a	2.1	2.7	1.4	2.7	1.1	0.4	.....	1.2	1.0	1.2	1.5
40	8 22	2 00	8 11b	2 38a	2.0	2.6	1.3	2.6	1.1	0.4	.....	1.2	1.0	1.2	2.0
41	8 23	1 58	8 11b	2 36a	1.8	2.3	1.2	2.4	1.1	0.3	.....	1.1	0.9	1.0	2.0
42	8 12	1 46	7 59b	2 29a	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	2.0
43	2 19	8 56	2 04a	9 45b	1.3	1.7	0.9	1.8	0.9	0.3	.....	1.0	0.6	0.8	2.0
44	8 27	2 08	8 14b	2 53a	1.4	1.8	0.9	1.9	0.9	0.3	.....	1.0	0.7	0.8	2.0
45	8 24	2 06	8 11b	2 47a	1.5	1.9	1.0	2.0	1.0	0.3	.....	1.0	0.8	0.9	2.0
46	8 16	2 02	8 08b	2 44a	1.5	1.9	1.0	2.0	1.0	0.3	.....	1.0	0.8	0.9	2.0
47	8 32	2 13	8 19b	2 56a	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	2.0
48	8 40	2 20	8 26b	3 07a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	2.5
49	9 20	2 36	8 44b	3 22a	1.2	1.6	0.9	1.9	0.9	0.6	18 43	1.2	0.6	0.9	2.5
50	11 19	5 05	11 00b	5 33a	2.6	3.2	1.7	3.1	1.2	0.4	.....	1.3	1.2	1.4	2.5
51	9 10	2 56	8 56b	3 43a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	2.5
52	9 30	3 12	8 57b	4 02a	1.1	1.4	0.7	2.1	1.0	1.0	.....	1.5	0.6	1.0	2.5
53	9 44	3 21	8 47b	4 14a	1.1	1.4	0.8	2.1	1.0	1.0	18 41	1.5	0.6	1.1	2.5
54	11 28	5 37	11 20b	6 05a	3.6	4.6	2.4	4.4	1.5	0.5	.....	1.6	1.8	2.0	2.0
55	1 06	7 26	0 56a	7 56a	2.9	3.7	1.9	3.6	1.3	0.4	.....	1.4	1.4	1.6	2.0
56	0 46	7 08	0 38a	7 34a	3.7	4.7	2.5	4.5	1.5	0.5	.....	1.6	1.8	2.0	2.0
57	0 36	6 56	0 27a	7 23a	3.5	4.5	2.3	4.3	1.5	0.5	.....	1.6	1.8	2.0	2.0
58	0 26	6 46	0 17a	7 14a	3.4	4.4	2.3	4.2	1.5	0.5	.....	1.5	1.7	1.9	2.0
59	0 16	6 36	0 05a	7 10a	2.6	3.3	1.7	3.3	1.3	0.4	.....	1.4	1.3	1.5	2.0



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.					
		Latitude.	Longitude.		Name.	Page.	Time.		Height.							
			Arc.	Time.			HW.	LW.	HW.	LW.						
<b>NORTH AMERICA (EAST COAST)—Continued.</b>																
<b>FLORIDA—continued.</b>																
<b>Gulf of Mexico—Continued.</b>																
		<i>North.</i>	<i>West.</i>	<i>A. M.</i>			<i>Time meridian, 90° W.</i>		<i>Mean Low Water.</i>							
		<i>° ' "</i>	<i>° ' "</i>	<i>A. M.</i>			<i>A. M.</i>	<i>A. M.</i>	<i>feet.</i>	<i>feet.</i>						
1	Big Marco Pass.....	25 58	81 45	5 27	Key West.....	119	+3 10	+3 49	+1.1	0.0	1.92					
2	Sanibel I. Light, San Carlos Entr.....	26 27	82 01	5 28	Key West.....	119	+2 58	+3 35	+0.6	0.0	1.49					
3	Punta Rasa, San Carlos Bay.....	26 29	82 00	5 28	Key West.....	119	+3 00	+3 37	+0.4	0.0	1.32					
4	Boca Grande, Charlotte Harbor.....	26 48	82 16	5 29	Key West.....	119	+3 49	+3 46	-0.1	0.0	0.92					
5	Punta Gorda, Charlotte Harbor.....	26 55	82 05	5 28	Key West.....	119	+5 06	+5 05	+0.2	0.0	1.16					
6	Sarasota Point.....	27 17	82 34	5 30	Halifax.....	51	+4 00	+3 11	-3.2	-0.4	0.35					
7	Egmont Key Light, Tampa Bay.....	27 36	82 46	5 31	Halifax.....	51	+3 18	+2 41	-3.4	-0.4	0.33					
8	Palma Sola, Manatee R., Tampa B.....	27 31	82 37	5 30	Halifax.....	51	+3 41	+2 58	-3.2	-0.4	0.37					
9	St. Petersburg, Tampa Bay.....	27 46	82 38	5 31	Halifax.....	51	+4 14	+4 22	-2.8	-0.4	0.47					
10	Tampa, Hillsboro Bay, Tampa Bay.....	27 57	82 27	5 30	Halifax.....	51	+5 30	+6 23	-2.6	-0.4	0.51					
11	Dunedin, St. Josephs Sound.....	28 01	82 48	5 31	Halifax.....	51	+4 01	+3 54	-3.0	-0.4	0.42					
12	Anclote Keys Light.....	28 10	82 51	5 31	Halifax.....	51	+3 06	+2 39	-2.8	-0.4	0.47					
13	Bayport.....	28 32	82 39	5 31	Halifax.....	51	+4 45	+5 10	-2.4	-0.4	0.56					
14	Cedar Keys.....	29 08	83 02	5 32	Halifax.....	51	+5 05	+4 48	-2.4	-0.4	0.56					
15	Suwanee River Entrance.....	29 17	83 09	5 33	Halifax.....	51	+4 41	+4 22	-2.4	-0.4	0.53					
16	Pepperfish Keys.....	29 30	83 22	5 33	Halifax.....	51	+4 23	+3 56	-2.7	-0.4	0.49					
17	Steinhatchee River, Deadman Bay.....	29 40	83 24	5 34	Halifax.....	51	+5 14	+4 46	-2.8	-0.4	0.47					
18	Point Edward.....	29 44	83 32	5 34	Halifax.....	51	+5 04	+4 03	-2.8	-0.4	0.44					
19	Rock Island.....	29 58	83 50	5 35	Halifax.....	51	+4 43	+4 11	-2.4	-0.4	0.53					
20	Ocala River Entrance.....	30 05	84 00	5 36	Halifax.....	51	+5 16	+4 44	-2.4	-0.4	0.56					
21	St. Marks Light, Apalachee Bay.....	30 04	84 11	5 37	Halifax.....	51	+5 46	+5 26	-2.3	-0.4	0.58					
22	St. Marks, St. Marks River.....	30 09	84 12	5 37	Halifax.....	51	+6 17	+6 10	-2.8	-0.4	0.47					
23	Ocklockonee Point.....	29 58	84 20	5 37	Halifax.....	51	+5 17	+4 35	-2.4	-0.4	0.53					
24	Dog Island, St. Georges Sound.....	29 47	84 40	5 39	Galveston.....	123	+3 39	-0 59	+1.1	-0.3	1.93					
25	Apalachicola, Apalachicola Bay.....	29 43	84 59	5 40	Galveston.....	123	+2 50	-1 15	+0.7	-0.3	1.67					
26	St. Vincents Island, West Pass.....	29 38	85 06	5 40	Galveston.....	123	+2 11	-1 39	+0.6	-0.2	1.53					
27	Cape San Blas.....	29 40	85 22	5 41	Galveston.....	123	+1 49	-1 50	+0.4	-0.2	1.40					
28	St. Josephs, St. Josephs Bay.....	29 48	85 18	5 41	Galveston.....	123	+2 14	-1 51	+0.4	-0.2	1.47					
29	St. Andrews, St. Andrews Bay.....	30 10	85 41	5 43	Galveston.....	123	+2 16	-1 38	+0.4	-0.2	1.53					
30	East Pass, Choctawhatchee Bay.....	30 23	86 29	5 46	Galveston.....	123	+2 03	-1 17	+0.2	-0.2	1.27					
31	Fort Pickens, Pensacola Bay.....	30 20	87 17	5 49	Galveston.....	123	+1 58	-1 52	0.0	-0.2	1.07					
32	Warrington Navy Yd., Pensacola B.....	30 21	87 16	5 49	Galveston.....	123	+2 03	-1 51	0.0	-0.2	1.13					
33	Pensacola, Pensacola Bay.....	30 24	87 13	5 49	Galveston.....	123	+2 25	-1 53	+0.2	-0.2	1.20					
34	Bohemia, Escambia B., Pensacola B.....	30 29	87 10	5 49	Galveston.....	123	+2 50	-1 08	0.0	-0.2	1.13					
<b>ALABAMA.</b>																
35	Perdido Entrance, Alabama Point.....	30 17	87 33	5 50	Galveston.....	123	+2 13	-1 31	+0.4	-0.2	1.33					
36	Mobile Point Light, Mobile Bay.....	30 14	88 01	5 52	Galveston.....	123	+1 56	-1 50	-0.2	-0.2	1.00					
37	Great Point Clear, Mobile Bay.....	30 29	87 56	5 52	Galveston.....	123	+4 12	-0 20	+0.8	-0.2	1.67					
38	Mobile, Mobile River.....	30 41	88 02	5 52	Galveston.....	123	+4 50	+0 16	+0.4	-0.2	1.40					
<b>MISSISSIPPI.</b>																
39	Horn Island Light.....	30 13	88 32	5 54	Galveston.....	123	+2 52	-0 52	+0.4	-0.2	1.47					
40	Pascagoula Light.....	30 21	88 34	5 54	Galveston.....	123	+1 31	-2 40	+0.5	-0.3	1.53					
41	Biloxi Light.....	30 24	88 54	5 56	Galveston.....	123	+2 35	-2 18	+0.5	-0.3	1.54					
42	Cat Island Light.....	30 14	89 09	5 57	Galveston.....	123	+3 06	-1 58	+0.4	-0.2	1.46					
<b>LOUISIANA.</b>																
43	Lake Borgne, The Rigolets.....	30 09	89 38	5 59	Galveston.....	123	+4 44	+2 42	-0.2	-0.0	0.93					
44	Chandeleur Light.....	30 03	88 52	5 55	Galveston.....	123	+1 58	-2 53	+0.2	-0.2	1.20					
45	Pass a Loutre Light, Mississippi R.....	29 12	89 02	5 56	Galveston.....	123	+1 06	-2 55	0.0	-0.2	1.07					
46	Port Eads, South Pass, Miss. R.....	29 01	89 10	5 57	Galveston.....	123	+0 57	-3 21	0.0	-0.2	1.14					
47	Southwest Pass Light, Miss. R.....	28 58	89 24	5 58	Galveston.....	123	+1 05	-3 28	+0.2	-0.2	1.27					
48	Head of Passes Lt., Mississippi R.....	29 09	89 15	5 57	Galveston.....	123	+1 20	-3 13	-0.2	-0.2	0.93					
49	Barataria Bay Light.....	29 17	89 57	6 00	Galveston.....	123	+1 21	-3 27	+0.4	-0.2	1.40					
50	Grand Pass, Timbalier Light.....	29 03	90 21	6 01	Galveston.....	123	+6 54	-5 08	+0.2	-0.4	1.33					
51	Wine Island, Terrebonne Bay.....	29 05	90 35	6 02	Galveston.....	123	+7 20	-4 46	0.0	-0.2	1.20					
52	Isle Dernière, or Last Island.....	29 04	90 57	6 04	Galveston.....	123	+7 36	-4 11	+0.4	-0.4	1.53					
53	Ship Shoal Light.....	28 55	91 04	6 04	Galveston.....	123	+7 44	-4 09	+0.4	-0.4	1.47					
54	Southwest Reef Lt., Atchafalaya B.....	29 24	91 30	6 06	Galveston.....	123	+8 15	-3 44	+0.2	-0.4	1.33					
55	Atchafalaya River Entrance.....	29 28	91 16	6 05	Galveston.....	123	-2 38	-2 18	0.0	-0.2	1.07					
56	Salt Point, Cote Blanche Bay.....	29 34	91 32	6 06	Galveston.....	123	-2 39	-2 06	+0.2	-0.2	1.27					
57	Cote Blanche, Cote Blanche Bay.....	29 44	91 43	6 07	Galveston.....	123	-1 24	-0 45	0.0	-0.2	1.20					
58	Southwest Pass, Vermilion Bay.....	29 35	92 02	6 08	Galveston.....	123	-3 49	-3 09	+0.4	-0.4	1.53					
59	Mermentau River Entrance.....	29 45	93 04	6 12	Key West.....	119	+5 52	+6 31	0.0	0.0	0.99					
60	Calcasieu Light.....	29 47	93 21	6 13	Key West.....	119	+6 10	+6 58	+0.4	0.0	1.24					
61	Sabine Pass Light.....	29 43	93 51	6 15	Key West.....	119	+7 12	+7 50	-0.4	0.0	0.58					

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>	
1	0 05	6 25	-0 05a	7 01a	2.3	2.9	1.5	2.9	1.2	0.4	-----	1.3	1.2	1.3	2.0	
2	12 17	6 10	12 05b	6 48a	1.8	2.3	1.2	2.4	1.1	0.3	-----	1.1	0.9	1.0	2.0	
3	12 19	6 12	12 06b	6 55a	1.6	2.0	1.1	2.1	1.0	0.3	-----	1.1	0.8	0.9	2.0	
4	0 42	6 19	0 28a	7 11a	1.1	1.4	0.7	1.5	0.8	0.3	-----	0.9	0.6	0.7	2.0	
5	2 00	7 40	1 47a	8 28a	1.4	1.8	0.9	1.9	0.9	0.3	-----	1.0	0.7	0.8	2.0	
6	12 15	5 38	11 19b	6 08a	1.5	2.0	0.9	2.4	0.8	1.4	-----	1.6	0.8	1.3	2.0	
7	11 32	5 07	10 38b	5 39a	1.4	1.8	0.9	2.3	0.8	1.3	-----	1.6	0.7	1.2	2.0	
8	11 55	5 20	11 00b	5 50a	1.6	2.1	1.0	2.5	0.8	1.4	-----	1.7	0.8	1.4	2.0	
9	0 08	6 48	11 39b	7 15a	2.0	2.6	1.2	3.0	0.9	1.6	-----	1.9	1.0	1.7	2.0	
10	1 20	8 50	0 33a	9 15a	2.2	2.9	1.4	3.3	0.9	1.7	-----	2.0	1.1	1.8	2.0	
11	12 15	6 20	11 22b	6 48a	1.8	2.4	1.1	2.8	0.9	1.5	-----	1.8	0.9	1.5	2.0	
12	11 20	5 05	10 31b	5 32a	2.0	2.6	1.2	3.0	0.9	1.6	-----	1.9	1.0	1.7	2.0	
13	0 84	7 36	-0 12a	8 01a	2.4	3.2	1.5	3.5	1.0	1.8	-----	2.1	1.2	1.9	2.0	
14	0 42	7 13	-0 03a	7 37a	2.4	3.1	1.5	3.5	1.0	1.7	21 18	2.1	1.2	1.9	2.0	
15	0 38	6 46	-0 09a	7 11a	2.3	3.0	1.4	3.4	1.0	1.7	-----	2.1	1.2	1.8	2.0	
16	0 11	6 20	-0 38a	6 47a	2.1	2.8	1.3	3.1	0.9	1.6	-----	2.0	1.0	1.8	2.0	
17	1 00	7 09	-0 11a	7 36a	2.0	2.6	1.2	3.0	0.9	1.6	-----	1.9	1.0	1.7	2.0	
18	0 50	6 26	-0 02a	6 54a	1.9	2.5	1.2	2.9	0.9	1.6	-----	1.9	1.0	1.6	2.0	
19	0 28	6 33	-0 19a	6 58a	2.3	3.0	1.4	3.4	1.0	1.7	-----	2.1	1.2	1.8	2.5	
20	1 09	7 05	0 14a	7 30a	2.4	3.2	1.5	3.5	1.0	1.8	-----	2.1	1.2	1.9	2.5	
21	1 29	7 46	0 30a	8 03a	2.5	3.2	1.5	3.6	0.8	2.0	21 26	2.2	1.2	2.1	2.5	
22	2 00	8 30	1 11a	8 57a	2.0	2.6	1.2	3.0	0.9	1.6	-----	1.9	1.0	1.7	2.5	
23	1 00	7 05	0 13a	7 30a	2.3	3.0	1.4	3.4	1.0	1.7	-----	2.1	1.2	1.8	3.0	
24	[0 20]	[6 25]	-1 10a	9 44a	[1.2]	[1.7]	[0.6]	2.9	-----	-----	-----	2.2	1.0	1.4	3.0	
25	[12 10]	[5 35]	10 25b	9 27a	[0.8]	[1.1]	[0.4]	2.5	-----	-----	-----	2.1	0.8	1.2	3.0	
26	[11 30]	[5 15]	9 46b	9 03a	[0.6]	[0.8]	[0.3]	2.3	-----	-----	-----	2.0	0.8	1.1	3.0	
27	[11 10]	[4 55]	9 23b	8 51a	[0.4]	[0.6]	[0.2]	2.1	-----	-----	-----	1.9	0.7	1.0	3.0	
28	[11 30]	[5 05]	9 48b	8 50a	[0.5]	[0.7]	[0.2]	2.2	-----	-----	-----	1.9	0.7	1.1	3.0	
29	[11 35]	[5 05]	9 48b	9 01a	[0.3]	[0.4]	[0.1]	2.0	-----	-----	-----	1.8	0.7	1.0	3.0	
30	[11 25]	[5 10]	9 32b	9 19a	[0.2]	[0.3]	[0.1]	1.9	-----	-----	-----	1.8	0.6	0.9	3.5	
31	[11 23]	[4 19]	9 24b	8 41a	[0.1]	[0.1]	[0.0]	1.6	-----	-----	-----	1.6	0.5	0.8	4.0	
32	[11 24]	[4 20]	9 29b	8 42a	[0.1]	[0.2]	[0.1]	1.7	-----	-----	21 33	1.7	0.5	0.8	4.0	
33	[11 43]	[4 34]	9 51b	8 40a	[0.1]	[0.1]	[0.0]	1.8	-----	-----	-----	1.7	0.6	0.9	4.0	
34	[12 15]	[5 03]	10 16b	9 25a	[0.1]	[0.1]	[0.0]	1.7	-----	-----	-----	1.7	0.5	0.8	4.0	
35	[11 25]	[5 05]	9 38b	9 01a	[0.3]	[0.4]	[0.1]	2.0	-----	-----	-----	1.8	0.7	1.0	4.5	
36	[11 25]	[3 09]	9 19b	8 40a	[0.1]	[0.2]	[0.1]	1.5	-----	-----	21 24	1.5	0.4	0.7	4.5	
37	[0 50]	[6 30]	-0 50a	10 10a	[1.0]	[1.4]	[0.5]	2.5	-----	-----	-----	2.1	0.9	1.2	4.5	
38	[1 35]	[6 50]	12 13b	10 46a	[0.5]	[0.7]	[0.2]	2.1	-----	-----	-----	1.9	0.7	1.0	4.5	
39	[12 00]	[5 40]	10 13b	9 36a	[0.3]	[0.4]	[0.1]	2.0	-----	-----	-----	1.8	0.7	1.0	4.5	
40	[0 20]	[5 45]	8 52b	7 48a	[0.4]	[0.6]	[0.1]	2.3	-----	-----	-----	2.2	0.7	1.1	4.5	
41	[1 01]	[6 00]	9 54b	8 08a	[0.3]	[0.4]	[0.0]	2.3	-----	-----	21 29	2.2	0.7	1.1	5.0	
42	[0 23]	[6 35]	10 24b	8 27a	[0.3]	[0.3]	[0.2]	2.1	-----	-----	21 52	2.0	0.7	1.0	5.0	
43	[8 10]	[9 45]	12 00b	0 40b	[0.3]	[0.4]	[0.2]	1.4	-----	-----	-----	1.4	0.5	0.7	5.0	
44	[11 53]	[5 33]	9 18b	7 34a	[0.2]	[0.3]	[0.1]	1.8	-----	-----	-----	1.9	0.6	0.9	5.0	
45	[11 15]	[5 00]	8 25b	7 31a	[0.1]	[0.1]	[0.0]	1.6	-----	-----	-----	1.7	0.5	0.8	5.0	
46	[10 55]	[4 42]	8 15b	7 04a	[0.1]	[0.2]	[0.1]	1.7	-----	-----	20 07	1.7	0.5	0.8	5.0	
47	[10 54]	[4 41]	8 22b	6 56a	[0.2]	[0.3]	[0.1]	1.9	-----	-----	-----	1.8	0.6	0.9	5.0	
48	[11 30]	[4 30]	8 38b	7 12a	[0.1]	[0.1]	[0.0]	1.4	-----	-----	-----	1.6	0.4	0.7	5.0	
49	[11 00]	[4 47]	8 36b	6 55a	[0.4]	[0.5]	[0.2]	2.1	-----	-----	-----	1.9	0.7	1.0	5.0	
50	[11 50]	[5 38]	1 43a	5 13a	[0.4]	[0.5]	[0.3]	2.0	-----	-----	-----	1.6	0.5	0.8	5.0	
51	[12 10]	[6 00]	2 08a	5 34a	[0.3]	[0.3]	[0.3]	1.8	-----	-----	-----	1.5	0.5	0.7	5.5	
52	[0 15]	[6 30]	2 22a	6 07a	[0.7]	[0.8]	[0.6]	2.3	-----	-----	-----	1.7	0.6	0.8	5.5	
53	[0 18]	[6 33]	2 30a	6 09a	[0.6]	[0.7]	[0.5]	2.2	-----	-----	-----	1.7	0.6	0.8	5.5	
54	[0 40]	[6 56]	2 58a	6 31a	[0.5]	[0.6]	[0.4]	2.0	-----	-----	-----	1.6	0.5	0.8	6.0	
55	[2 00]	[8 25]	4 31b	7 58a	[0.4]	[0.5]	[0.3]	1.6	-----	-----	-----	1.4	0.5	0.7	6.0	
56	[2 05]	[8 35]	4 29b	8 09a	[0.7]	[0.8]	[0.6]	1.9	-----	-----	-----	1.6	0.6	0.8	6.0	
57	[8 20]	[9 55]	5 43b	9 29a	[0.6]	[0.7]	[0.5]	1.8	-----	-----	-----	1.5	0.5	0.7	6.0	
58	[1 10]	[7 27]	3 17b	7 04a	[1.0]	[1.1]	[0.9]	2.3	-----	-----	-----	1.7	0.6	0.8	6.0	
59	2 00	8 20	3 25b	7 36a	1.2	1.4	1.0	2.2	0.4	1.2	-----	1.3	0.6	1.0	6.5	
60	2 17	8 41	3 34b	8 22a	1.5	1.7	1.3	2.0	0.4	1.2	-----	1.2	0.8	0.9	6.5	
61	8 17	9 36	4 42b	9 17a	0.7	0.9	0.6	1.2	0.3	0.6	-----	0.7	0.4	0.5	6.5	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (EAST COAST)—Continued.											
TEXAS.		North.	West.				Time meridian, 90° W.	Mean Low Water.			
		°	'	h. m.			h. m.	feet.	feet.		
1	Bolivar Point Light	29 22	94 46	6 19	Galveston	123	+0 25	+0 12	+0.2	0.0	1.07
2	Galveston, Doswells Wharf	29 19	94 47	6 19	Galveston	123	0 00	0 00	0.0	0.0	1.00
3	Morgans Point, Galveston Bay	29 41	94 58	6 20	Galveston	123	+3 16	+2 24	-0.7	+0.1	0.47
4	Brazos River Entrance	28 56	95 18	6 21	Galveston	123	-0 07	+0 03	0.0	0.0	1.07
5	Pass Cavallo, Matagorda Bay	28 22	96 24	6 26	Galveston	123	+0 18	+0 25	0.0	0.0	1.07
6	Aransas Pass Light	27 52	97 03	6 28	Galveston	123	+0 10	+0 15	0.0	0.0	1.07
7	Corpus Christi Pass	27 36	97 13	6 29	Galveston	123	-0 09	-0 04	0.0	0.0	1.07
8	Brazos Santiago Light	26 04	97 10	6 29	Galveston	123	-1 38	-2 16	-0.4	0.0	0.73
9	Rio Grande Entrance	25 57	97 09	6 29	Galveston	123	-2 10	-2 18	-0.2	0.0	0.93
MEXICO.											
Gulf of Mexico.							Local time				
10	Tampico	22 10	97 49	6 31	Galveston	123	-0 19	-2 30	-0.2	0.0	0.87
11	Vera Cruz	19 12	96 08	6 25	Galveston	123	+0 04	-2 25	+0.6	-0.4	1.60
12	Arcas Cays	20 15	91 58	6 09	Galveston	123	-3 04	-5 13	0.0	-0.2	1.07
13	Triangles	20 54	92 08	6 04	Galveston	123	-3 10	-5 18	0.0	-0.2	1.07
14	Laguna de Terminos	18 36	91 53	6 08	Galveston	123	-2 54	-5 03	0.0	-0.2	1.07
15	Campeche	19 50	90 32	6 02	Galveston	123	-2 16	-1 09	+1.2	-0.8	2.40
16	Sisal	21 10	90 03	6 00	Key West	119	+1 34	+2 08	+0.2	0.0	1.16
17	Cape Catoche	21 32	87 04	5 48	Key West	119	+0 32	+1 05	0.0	0.0	0.99
18	Mugueres Harbor	21 14	86 52	5 47	Key West	119	+0 21	+0 53	0.0	0.0	1.07
19	Cozumel	20 28	86 48	5 47	Key West	119	-0 39	-0 07	0.0	0.0	0.99
BELIZE.											
20	Belize	17 33	88 14	5 53	Key West	119	-0 46	-0 12	0.0	0.0	0.99
GUATEMALA.											
Caribbean Sea.											
21	Dulce River Entrance	15 50	88 45	5 55	Key West	119	+0 14	+0 43	+0.4	0.0	1.32
HONDURAS.											
Caribbean Sea.											
22	Roatan Island	16 23	86 28	5 46	Key West	119	-1 11	-0 39	+1.6	0.0	2.23
23	Bonacca Island	16 29	85 54	5 44	Key West	119	+0 04	+0 36	0.0	0.0	0.99
NICARAGUA.											
Caribbean Sea.											
24	Serranilla Bank	15 50	79 48	5 19	Key West	119	-4 47	-4 25	+0.4	0.0	1.32
25	Serrana Bank	14 20	80 17	5 21	Key West	119	-4 47	-4 25	+0.4	0.0	1.32
26	Old Providence Island	13 21	81 18	5 25	Key West	119	-4 47	-4 25	-0.4	0.0	0.66
27	Cape Gracias a Dios Harbor	14 52	88 14	5 33	Key West	119	+1 33	+2 04	+0.4	0.0	1.32
28	Pearl Cays	12 23	83 26	5 34	Key West	119	+5 28	+6 00	+0.4	0.0	1.32
29	Corn Islands	12 10	83 03	5 32	Key West	119	+5 13	+5 44	+0.4	0.0	1.32
30	Bluefields, Lagoon Entrance	12 01	83 42	5 35	Key West	119	+4 38	+4 57	-0.5	0.0	0.56
31	San Juan del Norte (Greytown)	10 55	83 41	5 35	Key West	119	+4 38	+5 10	0.0	0.0	0.99
COSTA RICA.											
Caribbean Sea.											
32	Point Blanco	10 00	83 02	5 32	Key West	119	+4 38	+5 10	0.0	0.0	1.07
BERMUDA ISLANDS.											
33	Ireland Island, dockyard	32 20	64 50	4 19	Sandy Hook	83	-0 28	-0 32	-1.3	0.0	0.70
BAHAMAS.											
34	Memory Rock	26 59	79 09	5 17	Key West	119	-1 07	-0 35	+1.2	0.0	2.07
35	Great Bahama Island	26 29	78 40	5 15	Key West	119	-1 02	-0 30	+1.8	0.0	2.43
36	Whale Key	26 42	77 08	5 09	Key West	119	-0 58	-0 26	+2.4	0.0	2.89
37	Great Abaco	26 17	77 08	5 09	Key West	119	-0 56	-0 24	+1.2	0.0	1.98
38	Gun Key	25 34	79 18	5 17	Key West	119	-0 27	+0 05	+1.2	0.0	1.90
39	Andros Island	24 29	77 44	5 11	Key West	119	-1 08	-0 36	+1.1	0.0	1.90
40	Nassau, New Providence Island	25 05	77 21	5 09	Key West	119	-1 25	-0 52	+1.4	0.0	2.17
41	Eleuthera Island	25 08	76 08	5 05	Key West	119	-1 48	-1 16	+1.9	0.0	2.56
42	Cat Island	24 20	75 24	5 02	Key West	119	-1 48	-1 16	+1.9	0.0	2.56
43	San Salvador, or Watling Island	24 06	74 26	4 58	Key West	119	-1 48	-1 16	+1.9	0.0	2.56
44	Clarence Harbor, Long Island	23 06	74 58	5 00	Key West	119	-0 28	+0 04	+2.0	0.0	2.61
45	Crooked Island	22 49	74 21	4 57	Key West	119	-1 58	-1 26	+0.8	0.0	1.63
46	Mariguana Island	22 26	73 00	4 52	Key West	119	-1 28	-0 56	+1.1	0.0	1.90
47	Inagua Island	20 56	73 41	4 55	Key West	119	-0 58	-0 26	+1.5	0.0	2.23
48	Turks Islands	21 26	71 09	4 45	Key West	119	-1 18	-0 46	+1.1	0.0	1.90

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW. interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	4 07	10 23	7 20b	10 14a	[0.7]	[0.8]	[0.6]	1.6	.....	.....	.....	1.4	0.7	0.9	7.0
2	4 18	10 33	6 55b	10 02a	[0.5]	[0.5]	[0.4]	1.5	.....	.....	21 38	1.4	0.6	0.9	7.0
3	6 30	10 40	10 10b	0 00b	[0.1]	[0.1]	[0.1]	0.7	.....	.....	.....	0.9	0.3	0.5	7.0
4	4 15	10 30	6 46b	10 03a	[0.7]	[0.8]	[0.6]	1.6	.....	.....	.....	1.4	0.6	0.8	7.0
5	4 35	10 47	7 06b	10 20a	[0.7]	[0.8]	[0.6]	1.6	.....	.....	.....	1.4	0.6	0.8	7.5
6	4 25	10 35	6 56b	10 08a	[0.8]	[0.9]	[0.7]	1.6	.....	.....	.....	1.4	0.6	0.8	7.5
7	4 05	10 15	6 36b	9 48a	[0.7]	[0.8]	[0.6]	1.6	.....	.....	.....	1.4	0.6	0.8	7.5
8	2 00	8 10	5 07b	7 36a	[0.3]	[0.4]	[0.2]	1.1	.....	.....	.....	1.2	0.4	0.6	7.5
9	1 55	8 03	4 35b	7 34a	[0.4]	[0.5]	[0.5]	1.4	.....	.....	.....	1.3	0.5	0.7	7.5
10	2 00	8 34	6 55b	7 51a	[0.2]	[0.2]	[0.1]	1.3	.....	.....	19 57	1.3	0.5	0.7	7.0
11	2 49	8 38	7 18b	7 56a	[0.4]	[0.6]	[0.3]	2.4	.....	.....	20 35	2.4	0.7	1.1	6.5
12	12 06	5 50	4 10b	5 08a	[0.3]	[0.4]	[0.2]	1.6	.....	.....	.....	1.5	0.5	0.8	6.0
13	12 00	5 45	4 04b	5 03a	[0.3]	[0.4]	[0.2]	1.6	.....	.....	.....	1.5	0.5	0.8	6.0
14	12 16	6 00	4 20b	5 18a	[0.3]	[0.4]	[0.2]	1.6	.....	.....	.....	1.5	0.5	0.8	6.0
15	2 59	9 28	4 59b	9 13a	1.7	2.1	1.3	3.6	0.4	3.0	20 59	3.0	0.8	2.3	6.0
16	10 20	4 10	10 07b	4 55a	1.4	1.8	0.9	1.9	0.9	0.3	.....	1.0	0.7	0.8	5.5
17	9 30	3 19	9 16b	4 06a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	4.5
18	9 20	3 08	9 06b	3 57a	1.8	1.6	0.9	1.8	0.9	0.3	.....	1.0	0.6	0.8	4.5
19	8 20	2 08	8 06b	2 55a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	4.5
20	8 00	1 50	7 46b	2 37a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	5.5
21	9 00	2 50	8 47b	3 33a	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	5.5
22	7 35	1 23	7 25b	1 56a	2.7	3.5	1.8	3.4	1.3	0.4	.....	1.4	1.4	1.5	5.5
23	8 50	2 38	8 36b	3 25a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	5.0
24	4 00	10 13	3 47b	10 56b	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	3.5
25	4 00	10 13	3 47b	10 56b	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	4.0
26	4 00	10 13	3 43b	11 08b	0.8	1.0	0.5	1.2	0.7	0.2	.....	0.7	0.4	0.5	4.5
27	10 20	4 07	10 07a	4 50b	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	4.5
28	1 50	8 03	1 37b	8 46b	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	5.5
29	1 35	7 47	1 22b	8 30b	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	5.0
30	1 04	7 00	0 19a	7 51b	0.7	0.8	0.6	1.3	0.9	0.3	.....	0.9	0.3	0.6	5.5
31	1 00	7 13	0 46b	8 00b	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	6.0
32	1 00	7 13	0 45b	8 02b	1.3	1.6	0.9	1.8	0.9	0.3	.....	1.0	0.6	0.8	6.0
33	7 04	0 52	7 01a	1 08a	3.3	4.0	2.6	3.6	0.8	0.1	.....	0.9	1.6	1.7	West. 9.0
34	7 40	1 28	7 30a	2 01a	2.5	3.2	1.7	3.1	1.2	0.4	.....	1.3	1.2	1.4	East. 0.5
35	7 45	1 33	7 35a	2 03a	3.0	3.8	2.0	3.8	1.4	0.5	.....	1.5	1.5	1.7	0.5
36	7 50	1 38	7 41a	2 06a	3.5	4.5	2.4	4.3	1.5	0.5	.....	1.6	1.8	1.9	0.0
37	7 52	1 40	7 42a	2 14a	2.4	3.1	1.6	3.0	1.2	0.4	.....	1.3	1.2	1.4	0.0
38	8 20	2 08	8 09a	2 44a	2.3	3.0	1.5	2.9	1.2	0.4	.....	1.3	1.2	1.3	0.5
39	7 40	1 28	7 29a	2 04a	2.3	3.0	1.5	2.9	1.2	0.4	.....	1.3	1.2	1.3	1.0
40	7 23	1 12	7 28a	0 46a	2.6	3.1	2.1	3.1	1.0	0.3	8 22	1.0	1.3	1.4	0.5
41	7 00	0 48	6 51a	1 18a	3.1	4.0	2.1	3.9	1.4	0.5	.....	1.5	1.6	1.7	0.0
42	7 00	0 48	6 51a	1 18a	3.1	4.0	2.1	3.9	1.4	0.5	.....	1.5	1.6	1.7	0.0
43	7 00	0 48	6 51a	1 18a	3.1	4.0	2.1	3.9	1.4	0.5	.....	1.5	1.6	1.7	0.0
44	8 20	2 08	8 11a	2 38a	3.2	4.1	2.1	4.0	1.4	0.5	.....	1.5	1.6	1.8	0.5
45	6 50	0 38	6 39a	1 16a	2.0	2.5	1.3	2.6	1.1	0.4	.....	1.2	1.0	1.2	0.0
46	7 20	1 08	7 09a	1 44a	2.3	3.0	1.5	2.9	1.2	0.4	.....	1.3	1.2	1.3	0.0
47	7 50	1 38	7 40a	2 11a	2.7	3.5	1.8	3.4	1.3	0.4	.....	1.4	1.4	1.5	0.5
48	7 30	1 18	7 19a	1 54a	2.3	3.0	1.5	2.9	1.2	0.4	.....	1.3	1.2	1.3	0.0

TABLE 3.—TIDAL DIFFERENCES

Number	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of ranges.				
		Latitude.	Longitude.		Name.	Page.	Time.		Height.					
			Arc.	Time.			HW.	LW.	HW.	LW.				
<b>NORTH AMERICA (EAST COAST)—Continued.</b>														
<b>WEST INDIES.</b>														
<b>Cuba.</b>														
		<i>North.</i>	<i>West.</i>	<i>h. m.</i>			<i>Time meridian, 75° W.</i>		<i>Mean Low Water.</i>					
							<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>					
1	Cape San Antonio	21 52	84 58	5 40	Key West	119	+ 0 23	+ 0 55	0.0	1.00				
2	Bahia Honda	22 58	83 13	5 33	Key West	119	+ 0 10	+ 0 36	-0.2	0.83				
3	Habana	23 08	82 22	5 29	Key West	119	0 00	+ 0 22	-0.3	0.75				
4	Mantanzas	23 02	81 45	5 27	Key West	119	+ 0 10	+ 0 42	+0.5	1.42				
5	Cardenas	23 04	81 12	5 25	Key West	119	+ 1 03	+ 1 35	+0.2	1.17				
6	Cayo Paredón Grande	22 29	78 09	5 13	Key West	119	- 1 14	- 0 42	+1.0	1.83				
7	Nuevitas Bay Entrance	21 38	77 07	5 08	Key West	119	+12 15	+12 44	+0.1	1.08				
8	Nuevitas, Nuevitas Bay	21 35	77 15	5 09	Key West	119	+14 01	+14 38	-0.2	1.17				
9	Port Padre	21 12	76 36	5 06	Key West	119	+12 24	+12 55	+0.9	1.75				
10	Port Gibara	21 06	76 08	5 05	Key West	119	+11 30	+11 57	+0.7	1.54				
11	Port Nipe Entrance	20 48	75 35	5 02	Key West	119	+11 84	+12 04	+0.8	1.67				
12	Livisa Bay Entrance	20 45	75 28	5 02	Key West	119	+11 27	+11 59	+0.7	1.58				
13	Port Panama	20 43	75 19	5 01	Key West	119	+11 29	+11 57	+0.7	1.58				
14	Cape Maisi	20 15	74 08	4 57	Key West	119	+11 14	+11 46	+1.0	1.83				
15	Guantanamo Bay Entrance	19 56	75 09	5 01	Key West	119	+12 25	+12 54	-0.2	0.83				
16	Santiago Bay Entrance	20 00	75 50	5 03	Key West	119	+12 49	+13 17	-0.1	0.92				
17	Ensenada de Mora	19 51	75 30	5 10	Key West	119	+12 46	+13 23	-0.4	0.67				
18	Manzanillo	20 19	77 10	5 09	Key West	119	-10 04	9 32	+1.9	2.58				
19	Port Xagua Entrance (Cienfuegos)	22 08	80 28	5 22	Key West	119	+ 0 55	+ 1 27	+0.4	1.58				
<b>Jamaica.</b>														
							<i>Local time.</i>							
20	Morant Point	17 56	76 11	5 05	Galveston	123	- 9 41	+12 02	-0.4	0.74				
21	Port Royal	17 56	76 47	5 07	Galveston	123	- 8 41	-11 48	-0.4	0.74				
22	South Negril Point	18 18	78 24	5 14	Galveston	123	- 5 16	- 8 23	-0.4	0.74				
23	St. Anna Bay	18 30	77 16	5 09	Galveston	123	- 8 41	-11 48	-0.4	0.81				
24	Grand Cayman Island	19 20	81 21	5 25	Galveston	123	-10 41	+11 02	-0.3	0.87				
<b>Haiti or Santo Domingo.</b>														
25	Port au Prince	18 37	72 21	4 49	Galveston	123	-11 42	-10 24	-0.4	0.81				
26	Port Dauphin	19 46	71 48	4 47	St. Johns	47	+ 0 04	+ 0 03	+1.4	1.92				
27	Samana Bay	19 13	69 09	4 37	St. Johns	47	+ 2 11	+ 2 12	-0.6	0.92				
28	Saona Island	18 10	68 40	4 35	Galveston	123	- 8 58	- 8 48	-0.8	0.40				
29	Santo Domingo	18 27	69 53	4 40	Galveston	123	-10 42	- 9 24	+0.6	1.48				
30	Jamel	18 12	72 35	4 50	Galveston	123	-10 42	- 9 24	+0.8	1.68				
<b>Porto Rico.</b>														
							<i>Time meridian, 60° W.</i>							
31	Culebrita Island Light	18 19	65 14	4 21	Galveston	123	-10 32	- 9 09	-0.4	0.67				
32	Great Harbor, Culebra Island	18 18	65 17	4 21	Key West	119	+12 01	+ 0 30	-0.6	0.58				
33	Port Mulas, Vieques or Crab Island	18 09	65 27	4 22	Key West	119	+12 09	+ 0 11	-0.4	0.67				
34	Port Ferro, Vieques or Crab Island	18 06	65 26	4 22	Galveston	123	-10 29	- 8 48	-0.4	0.73				
35	San Juan	18 29	66 07	4 24	Key West	119	- 0 02	+ 0 34	-0.1	0.92				
36	Fajardo Harbor	18 20	65 38	4 23	Key West	119	- 0 31	+ 0 27	-0.1	0.92				
37	Humacao Bay	18 09	65 46	4 23	Key West	119	-0 29	+ 0 30	+0.1	1.00				
38	Port of Ponce	17 59	66 40	4 27	Galveston	123	-7 32	- 9 18	-0.6	0.64				
39	Port Guanica	17 58	66 56	4 28	Galveston	123	-7 58	-10 46	-0.6	0.67				
40	Parguera	17 58	67 03	4 28	Galveston	123	-7 31	-11 53	-0.2	+0.4				
41	Port Real	18 05	67 11	4 29	Key West	119	-0 23	+ 0 19	-0.4	0.67				
42	Mayaguez	18 13	67 08	4 29	Key West	119	-1 20	+ 0 24	-0.1	0.92				
<b>Windward or Caribbean Islands.</b>														
							<i>Local time.</i>							
43	St. Thomas Island	18 25	64 58	4 20	Galveston	123	-10 54	- 9 34	-0.4	0.80				
44	St. Bartholomew Island	17 54	62 51	4 11	Galveston	123	-10 43	- 9 25	0.0	1.06				
45	Antigua Island	16 59	61 48	4 07	Galveston	123	- 9 43	- 8 25	+0.4	1.34				
46	Guadaloupe	16 12	61 27	4 06	Galveston	123	- 8 43	- 7 25	-0.3	0.87				
47	Dominica	16 35	61 31	4 06	Key West	119	+ 7 35	+ 8 06	0.0	0.99				
48	Martinique	14 42	60 54	4 04	Key West	119	+ 7 25	+ 7 56	-0.3	0.74				
49	St. Vincent, Kingstown	13 10	61 13	4 05	Key West	119	+ 6 18	+ 6 52	0.0	1.00				
50	Barbados	13 07	59 36	3 58	Key West	119	+ 6 25	+ 6 56	+1.1	1.90				
51	Grenada	12 04	61 45	4 07	Key West	119	+ 6 05	+ 6 36	0.0	0.99				
52	Tobago	11 10	60 42	4 08	Key West	119	+ 7 25	+ 7 56	+0.4	1.32				
<b>SOUTH AMERICA (NORTH AND EAST COAST.)</b>														
<b>PANAMA.</b>														
<b>Caribbean Sea.</b>														
53	Colon (Aspinwall)	9 18	79 51	5 19	Key West	119	+ 3 44	+ 4 15	-0.3	0.74				
54	Caledonia Harbor	8 56	77 47	5 11	Key West	119	+ 2 42	+ 3 13	0.0	0.99				
<b>COLOMBIA.</b>														
<b>Caribbean Sea.</b>														
55	Cartagena	10 27	75 32	5 02	Key West	119	+ 2 02	+ 2 33	+0.1	1.00				
<b>VENEZUELA.</b>														
56	Maracaibo	10 43	71 39	4 47	Apia	211	- 1 33	- 1 32	-0.9	0.70				
57	La Guaira	10 40	66 58	4 28	Apia	211	- 0 89	- 0 88	-0.6	0.91				
58	Paríamar, Margarita Island	10 58	63 51	4 15	Apia	211	- 2 19	- 2 16	-1.6	0.50				
59	Orinoco R. Entr., Cangrejo Island	8 39	60 35	4 02	Apia	211	- 1 50	- 1 14	+2.5	2.06				
<b>TRINIDAD.</b>														
60	Port of Spain	10 39	61 31	4 06	Apia	211	- 2 20	- 2 21	-0.3	1.20				
61	Galeota Point	10 08	60 59	4 04	Apia	211	- 2 40	- 2 41	-0.3	1.00				

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HW1.	LW1.	HHW1.	LLW1.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>	
1	8 30	2 18	7 53b	2 10a	1.2	1.5	0.9	1.4	0.9	0.1	.....	0.9	0.6	0.7	3.5	
2	8 24	2 06	8 15b	8 28a	1.0	1.4	0.8	1.9	1.3	0.2	.....	1.3	0.5	1.0	3.0	
3	8 18	1 56	8 09b	3 18a	0.9	1.3	0.7	1.7	1.2	0.2	.....	1.2	0.5	0.9	2.5	
4	8 30	2 18	8 00b	2 12a	1.7	2.2	1.2	2.9	1.1	0.1	.....	1.1	0.8	0.9	2.5	
5	9 25	3 13	8 52b	3 06a	1.4	1.8	1.0	1.5	1.0	0.1	.....	1.0	0.7	0.8	2.5	
6	7 20	1 08	6 55b	1 02a	2.2	2.8	1.6	2.4	1.2	0.1	.....	1.2	1.1	1.2	1.5	
7	8 30	2 15	9 05a	2 00a	1.8	1.5	1.0	1.8	0.6	0.4	.....	0.8	0.7	0.8	1.5	
8	10 15	4 08	10 52a	3 55a	1.4	1.6	1.1	1.9	0.6	0.4	.....	0.8	0.7	0.9	1.5	
9	8 41	2 28	9 05a	2 12a	2.1	2.4	1.8	2.9	1.1	0.5	.....	1.2	1.1	1.3	1.0	
10	7 48	1 31	8 08a	1 16a	1.9	2.2	1.4	2.6	0.9	0.5	.....	1.1	1.0	1.1	1.0	
11	7 55	1 41	8 08a	1 28a	2.0	2.3	1.5	2.7	0.9	0.5	.....	1.1	1.0	1.1	1.0	
12	7 48	1 36	8 00a	1 24a	1.9	2.2	1.4	2.6	0.9	0.5	.....	1.1	0.9	1.1	1.0	
13	7 51	1 35	8 05a	1 23a	1.9	2.2	1.4	2.6	0.9	0.5	.....	1.1	1.0	1.1	1.0	
14	7 40	1 28	8 06a	1 04a	2.2	2.8	1.6	2.4	1.2	0.1	.....	1.2	1.1	1.2	0.5	
15	8 47	2 32	9 25a	1 56a	1.0	1.3	0.6	1.4	0.6	0.3	.....	0.6	0.5	0.6	1.0	
16	9 09	2 53	9 52a	2 48a	1.1	1.4	0.7	1.5	0.5	0.3	.....	0.6	0.5	0.7	1.0	
17	8 59	2 52	10 02a	3 18a	0.8	1.0	0.6	1.1	0.2	0.4	.....	0.4	0.4	0.6	2.0	
18	11 00	4 48	12 00a	5 10a	3.1	4.0	2.1	3.9	1.4	0.5	.....	1.5	1.6	1.7	1.5	
19	9 20	3 08	10 10b	3 17a	1.6	2.0	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	2.0	
20	.....	.....	10 00a	10 00b	[0.4]	.....	.....	1.1	.....	.....	.....	1.0	0.4	0.6	2.0	
21	.....	.....	11 00a	11 00b	[0.4]	.....	.....	1.1	.....	.....	.....	1.0	0.4	0.6	2.0	
22	.....	.....	2 00a	2 00a	[0.4]	.....	.....	1.1	.....	.....	.....	1.0	0.4	0.6	2.5	
23	.....	.....	11 00a	11 00b	[0.5]	.....	.....	1.2	.....	.....	.....	1.1	0.4	0.6	2.0	
24	.....	.....	9 00a	9 00b	[0.5]	.....	.....	1.3	.....	.....	.....	1.1	0.4	0.6	3.0	
25	.....	.....	8 00a	0 00a	[0.5]	.....	.....	1.2	.....	.....	.....	1.1	0.4	0.6	1.0	
26	6 50	0 39	7 00a	11 00b	4.3	5.5	2.9	5.5	1.6	0.5	.....	1.8	2.2	2.3	0.5	
27	9 00	2 48	8 00a	0 00a	2.3	3.0	1.5	3.1	1.2	0.4	.....	1.3	1.2	1.3	0.0	
28	[6 56]	[1.22]	10 44a	1 36a	[0.2]	.....	.....	0.6	.....	.....	.....	0.6	0.2	0.3	0.0	
29	.....	.....	9 00a	1 00a	[0.9]	.....	.....	2.2	.....	.....	.....	1.4	0.8	1.1	0.0	
30	.....	.....	9 00a	1 00a	[1.0]	.....	.....	2.5	.....	.....	.....	1.5	0.9	1.2	1.0	
31	[7 31]	[1 30]	8 50a	0 55a	[0.8]	[1.0]	[0.6]	1.0	.....	.....	.....	0.9	0.5	0.5	West.	
32	8 04	2 24	8 52a	1 13a	0.7	0.8	0.6	1.3	0.7	0.5	10 50	0.9	0.3	0.6	1.0	
33	8 11	1 54	8 39a	0 58a	0.8	1.0	0.7	1.5	0.8	0.5	.....	1.0	0.4	0.7	1.0	
34	[7 35]	[1 40]	8 52a	1 15a	[0.6]	[0.8]	[0.4]	1.1	.....	.....	.....	1.0	0.4	0.5	1.0	
35	8 23	2 15	8 58a	1 31a	1.1	1.3	0.9	1.8	0.8	0.7	11 08	1.0	0.6	0.9	1.0	
36	7 55	2 09	8 53a	1 17a	1.1	1.4	0.8	1.3	0.4	0.1	.....	0.9	0.6	0.7	1.0	
37	7 57	2 12	8 55a	1 24a	1.3	1.5	1.0	1.5	0.5	0.2	.....	1.0	0.6	0.7	1.0	
38	[8 28]	[3 87]	11 44b	0 40a	[0.1]	[0.1]	[0.0]	0.9	.....	.....	.....	0.8	0.3	0.4	0.5	
39	.....	.....	11 17a	11 36b	[0.3]	[0.6]	[0.1]	1.0	.....	.....	12 20	0.8	0.3	0.5	0.5	
40	[9 18]	[2 32]	11 44a	10 29b	[0.7]	[0.9]	[0.5]	1.0	.....	.....	.....	0.8	0.6	0.7	0.5	
41	7 57	1 55	8 01a	0 00a	0.8	1.2	0.8	1.3	0.6	0.3	.....	0.7	0.4	0.5	0.5	
42	8 00	2 00	7 50a	0 33a	1.1	2.0	1.0	2.1	0.8	0.4	.....	0.9	0.6	0.8	0.5	
43	[7 11]	[0 58]	8 49a	0 51a	[0.3]	.....	.....	1.2	.....	.....	11 05	1.1	0.4	0.6	1.0	
44	.....	.....	9 00a	1 00a	[0.6]	.....	.....	1.5	.....	.....	.....	1.3	0.6	0.8	1.5	
45	.....	.....	10 00a	2 00a	[0.8]	.....	.....	2.0	.....	.....	.....	1.4	0.7	1.0	1.5	
46	.....	.....	11 00a	3 00a	[0.5]	.....	.....	1.3	.....	.....	.....	1.1	0.4	0.6	1.5	
47	4 00	10 12	3 46a	10 59a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	1.0	
48	3 50	10 02	3 33a	10 59a	0.9	1.1	0.6	1.1	0.8	0.2	.....	0.8	0.4	0.5	1.0	
49	2 50	9 05	2 36a	9 52a	1.2	1.6	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	0.5	
50	2 50	9 02	2 39a	9 38a	2.3	3.0	1.5	2.9	1.2	0.4	.....	1.3	1.2	1.3	1.0	
51	2 30	8 42	2 16a	9 29a	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	0.0	
52	3 50	10 02	3 37a	10 45a	1.6	2.1	1.1	2.1	1.0	0.3	.....	1.1	0.8	0.9	0.0	
53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
54	0 06	6 18	—0 11b	7 15b	0.9	1.1	0.6	1.1	0.8	0.2	.....	0.8	0.4	0.5	East.	
55	11 30	5 17	11 16a	6 04b	1.2	1.5	0.8	1.7	0.9	0.3	.....	0.9	0.6	0.7	4.5	
56	10 50	4 37	10 35a	5 26b	1.3	1.6	0.9	1.8	0.9	0.3	.....	1.0	0.6	0.8	4.0	
57	5 05	11 17	5 04b	11 27b	2.0	2.5	1.5	2.0	0.3	0.1	.....	0.3	1.0	0.9	3.0	
58	6 00	12 12	5 59b	12 20b	2.3	2.8	1.7	2.3	0.3	0.1	.....	0.3	1.2	1.1	2.0	
59	4 20	10 35	4 27b	11 06b	1.3	1.6	1.0	1.5	0.4	0.3	.....	0.5	0.6	0.8	1.0	
60	4 50	11 38	5 04b	12 32b	5.4	6.5	4.0	6.0	0.5	0.6	.....	0.8	2.7	3.0	0.5	
61	4 20	10 30	4 19b	10 381b	3.2	4.0	2.4	3.2	0.4	0.1	.....	0.4	1.6	1.5	0.0	
62	4 00	10 10	3 59b	10 201b	2.6	3.2	1.9	2.6	0.4	0.1	.....	0.4	1.3	1.2	0.0	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.													
		Latitude.	Longitude.		Name.	Page.	Time.		Height.																
			Arc.	Time.			H.W.	L.W.	H.W.	L.W.															
SOUTH AMERICA (NORTH AND EAST COASTS)—Continued.																									
GUIANA.																									
		North.	West.				Local time.		Mean Low Water.																
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.															
1	Georgetown, Lemerarc River .....	6 49	58 11	3 58	Kingstown .....	315	+ 5 58	+ 5 30	- 3.4	-1.0	0.73														
2	Paramaribo, Surinam River .....	6 02	55 13	3 41	Kingstown .....	315	+ 7 30	+ 7 40	- 2.7	-1.0	0.81														
3	Cayenne, Cayenne River .....	4 56	52 20	3 29	Kingstown .....	313	+ 6 06	+ 6 09	- 5.3	-1.0	0.51														
BRAZIL.																									
4	Cape Cachipour .....	3 49	51 01	3 24	Cape Town .....	263	+ 4 17	+ 4 14	+ 3.2	-0.6	2.12														
5	Conani River .....	2 50	50 53	3 24	Cape Town .....	263	+ 5 03	+ 7 19	+10.4	-0.6	4.26														
6	Maraca Island Anchorage .....	2 09	50 30	3 22	Cape Town .....	263	+ 4 35	+ 7 49	+18.3	-0.6	6.74														
7	Balique Id. Lt., Amazon R. Entr. ....	0 54	49 55	3 20	Cape Town .....	263	+ 7 05	+10 19	+ 6.8	-0.6	3.21														
8	Point Pedrera, Amazon River .....	0 11	50 43	3 23	Cape Town .....	263	+ 9 25	+12 39	+ 8.2	-0.6	3.62														
South.																									
9	Dentro Channel, Para R. Entr. ....	0 28	47 55	3 12	Cape Town .....	263	+ 9 15	+ 9 17	+ 3.8	-0.6	2.32														
10	Para, Para River .....	1 27	48 31	3 14	Cape Town .....	263	+10 25	+10 26	+ 4.4	-0.6	2.47														
11	San Joao Islands Light .....	1 17	44 55	3 00	Cape Town .....	263	+ 4 48	+ 4 50	+ 6.6	-0.6	3.15														
12	Maranhão, or San Luis .....	2 30	44 19	2 57	Cape Town .....	263	+ 5 24	+ 5 26	+ 8.6	-0.6	3.71														
13	Santa Anna Reefs Light .....	2 16	43 36	2 54	Cape Town .....	263	+ 4 09	+ 4 10	+ 6.0	-0.6	2.94														
14	Tutola Anchorage .....	2 46	42 21	2 49	Cape Town .....	263	+ 3 39	+ 3 40	+ 4.8	-0.6	2.62														
15	San Joao da Paranahiba .....	2 59	41 47	2 47	Cape Town .....	263	+ 3 52	+ 3 53	+ 5.8	-0.6	2.88														
16	Camocim .....	2 53	40 52	2 43	Cape Town .....	263	+ 3 44	+ 3 45	+ 6.6	-0.6	3.15														
17	Point Jericoacoara .....	2 48	40 32	2 42	Cape Town .....	263	+ 3 49	+ 3 50	+ 2.0	-0.6	1.76														
18	Mandahl River Entrance .....	3 10	39 23	2 38	Cape Town .....	263	+ 3 54	+ 3 55	+ 2.6	-0.6	1.94														
19	Ceara .....	3 42	38 31	2 34	Cape Town .....	263	+ 3 59	+ 4 00	+ 2.2	-0.6	1.82														
20	Aracati, Jaguaribe River .....	4 28	37 45	2 31	Cape Town .....	263	+ 4 24	+ 4 23	+ 2.0	-0.6	1.79														
21	Povoacao, Mossoro River .....	4 57	37 10	2 29	Cape Town .....	263	+ 3 18	+ 3 19	+ 2.4	-0.6	1.91														
22	Cape St. Roque .....	5 29	35 16	2 21	Cape Town .....	263	+ 2 38	+ 2 39	+ 2.6	-0.6	1.97														
23	Parahiba River Light .....	6 57	34 50	2 19	Cape Town .....	263	+ 3 33	+ 3 34	+ 2.0	-0.6	1.76														
SOUTH AMERICA (SOUTH AND EAST COASTS).																									
BRAZIL—continued.																									
24	Pernambuco (Recife Arsenal) .....	8 04	34 54	2 20	Cape Town .....	263	+ 3 06	+ 3 12	+ 1.2	-0.6	1.56														
25	Macelo .....	9 35	35 41	2 23	Cape Town .....	263	+ 2 53	+ 2 54	+ 2.4	-0.6	1.91														
26	San Francisco River Entrance .....	10 28	36 23	2 26	Cape Town .....	263	+ 2 50	+ 2 51	+ 1.8	-0.6	1.74														
27	Bahia .....	12 58	38 31	2 34	Cape Town .....	263	+ 2 44	+ 2 45	+ 1.8	-0.6	1.71														
28	Morro Sao Paulo .....	13 21	38 54	2 36	Cape Town .....	263	+ 2 24	+ 2 23	+ 0.6	-0.6	1.35														
29	Port Camamu .....	13 54	39 02	2 36	Cape Town .....	263	+ 2 24	+ 2 23	+ 0.8	-0.6	1.41														
30	San Jorge dos Ilheos .....	14 47	39 03	2 36	Cape Town .....	263	+ 2 09	+ 2 10	+ 0.8	-0.6	1.44														
31	Santa Cruz .....	16 17	39 02	2 36	Cape Town .....	263	+ 1 59	+ 2 00	+ 0.6	-0.6	1.35														
32	Comoxatiba .....	17 06	39 10	2 37	Cape Town .....	263	+ 1 54	+ 1 55	+ 0.2	-0.6	1.26														
33	Caravellas .....	17 43	39 09	2 37	Cape Town .....	263	+ 1 44	+ 1 46	+ 0.8	-0.6	1.44														
34	Abrolhos Island Light .....	17 57	38 40	2 35	Cape Town .....	263	+ 1 49	+ 1 50	+ 1.6	-0.6	1.68														
35	Aldeia Velha, Barra de Santa Cruz ..	19 55	40 08	2 41	Cape Town .....	263	+ 1 29	+ 1 30	- 0.8	-0.6	0.94														
36	Victoria, Espirito Santo Bay .....	20 19	40 20	2 41	Cape Town .....	263	+ 1 24	+ 1 23	- 1.0	-0.6	0.88														
37	Benevente .....	20 49	40 41	2 43	Cape Town .....	263	+ 1 14	+ 1 15	- 0.2	-0.6	1.12														
38	Itabapua .....	21 20	40 59	2 44	Cape Town .....	263	+ 1 04	+ 1 05	0.0	-0.6	1.18														
39	Macabe .....	22 23	41 47	2 47	Cape Town .....	263	+ 0 54	+ 0 53	+ 3.0	-0.6	2.06														
40	Porto Frio .....	22 58	42 00	2 48	Cape Town .....	263	+ 1 04	+ 1 05	- 0.4	-0.6	1.09														
41	Rio de Janeiro .....	22 55	43 09	2 53	Cape Town .....	263	+ 1 24	+ 1 23	- 0.8	-0.6	0.94														
42	Parati, Ilha Grande Bay .....	23 13	44 42	2 59	Cape Town .....	263	+ 0 09	+ 0 10	0.0	-0.6	1.18														
43	San Sebastiao .....	23 48	45 23	3 02	Cape Town .....	263	+ 0 25	+ 0 24	- 1.0	-0.6	0.88														
44	Santos .....	23 56	46 20	3 05	Cape Town .....	263	+ 1 25	+ 1 24	+ 0.4	-0.6	1.29														
45	Paranagua .....	25 31	48 30	3 14	Cape Town .....	263	+ 1 30	+ 1 29	+ 0.8	-0.6	1.44														
46	Cape Joao Diaz, San Francisco R. ....	26 11	48 32	3 14	Cape Town .....	263	+ 0 55	+ 0 56	- 0.4	-0.6	1.06														
47	Santa Catharina Island .....	27 27	48 31	3 14	Cape Town .....	263	+ 1 10	+ 1 11	+ 0.4	-0.6	1.32														
48	Rio Grande do Sul .....	32 06	52 08	3 29	Cape Town .....	263	+ 2 35	+ 2 36	- 2.6	-0.6	0.41														
URUGUAY.																									
49	Castillo Bay .....	34 22	53 48	3 35	Buenos Ayres .....	127	+ 1 29	+ 2 11	- 0.2	+0.2	0.83														
50	Montevideo, Plata River .....	34 53	56 12	3 45	Buenos Ayres .....	127	- 4 50	- 4 51	- 0.3	+0.1	0.78														
51	Colonia, Plata River .....	34 28	57 52	3 51	Buenos Ayres .....	127	- 0 20	+ 0 04	+ 1.8	+0.2	1.91														
ARGENTINA.																									
52	Buenos Ayres, Plata River .....	34 36	58 22	3 53	Buenos Ayres .....	127	- 0 00	- 0 00	0.0	0.0	1.00														
53	Barragan Bay, Plata River .....	34 49	57 54	3 52	Buenos Ayres .....	127	- 0 50	- 0 41	+ 1.4	+0.2	1.69														
54	San Boronbon Bay .....	35 54	57 22	3 49	Buenos Ayres .....	127	- 2 20	- 1 51	+ 2.9	+0.3	2.47														
55	Cape San Antonio .....	36 20	56 46	3 47	Buenos Ayres .....	127	+ 3 00	+ 3 39	+ 3.0	+0.2	2.53														
56	Point Mogotes .....	38 09	57 30	3 50	Sitka .....	159	- 2 54	- 2 56	- 2.2	-2.2	0.93														
57	Port Belgrano, Bahia Blanca .....	38 59	61 52	4 07	Sitka .....	159	+ 5 44	+ 5 57	+ 3.1	-1.5	1.59														

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.												
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.													
	HWI.	LWI.	HHWI.	LLWI.																							
	h. m.	h. m.	h. m.	h. m.	feet.	feet.	feet.	feet.	feet.	feet.	h. m.	feet.	feet.	feet.	West.												
1	4 18	9 50			6.4	8.6	3.9								0												
2	5 50	12 00			7.1	9.5	4.3						3.6		1.0												
3	4 27	10 30			4.5	6.0	2.7						2.2		2.5												
4																											
5	5 42	11 50	5 39b	11 55a	7.2	9.5	4.5	7.9	0.6	0.3		0.7	3.6	3.9	3.0												
6	6 28	2 30	6 28b	2 34b	14.5	19.0	9.1	15.6	0.9	0.6		1.0	7.2	7.6	8.0												
7	6 00	3 00	5 58a	3 08b	22.9	30.0	14.8	24.2	1.1	0.6		1.3	11.4	12.0	8.0												
8	6 30	5 30	6 28b	5 34b	10.9	14.8	6.8	11.8	0.8	0.4		0.9	6.4	5.8	3.5												
9	10 50	7 50	10 48b	7 54b	12.3	16.2	7.7	13.2	0.8	0.4		0.9	6.2	6.5	8.0												
10																											
11	10 40	4 28	10 38b	4 32b	7.9	10.4	4.9	8.7	0.7	0.3		0.7	4.0	4.2	4.5												
12	11 50	5 37	11 47b	5 42b	8.4	11.0	5.2	9.2	0.7	0.4		0.8	4.2	4.6	4.0												
13	6 14	0 02	6 12b	0 06b	10.7	14.1	6.7	11.6	0.8	0.4		0.9	5.4	5.7	7.0												
14	6 50	0 38	6 48b	0 42b	12.6	16.5	7.9	13.5	0.8	0.4		0.9	6.3	6.6	7.5												
15	5 35	11 47	5 38b	11 51a	10.0	13.1	6.2	10.9	0.8	0.4		0.8	5.0	5.4	8.0												
16																											
17	5 05	11 17	5 02b	11 22a	8.9	11.7	5.6	9.8	0.7	0.4		0.8	4.4	4.8	9.0												
18	5 18	11 30	5 16b	11 34a	9.8	12.9	6.1	10.6	0.7	0.4		0.8	4.9	5.2	9.5												
19	5 10	11 22	5 08b	11 28a	10.7	14.1	6.7	11.6	0.8	0.4		0.9	5.4	5.7	10.5												
20	5 15	11 27	5 12b	11 32a	6.0	7.9	3.7	6.7	0.6	0.3		0.7	3.0	3.3	10.5												
21	5 20	11 32	5 17b	11 37a	6.6	8.6	4.1	7.3	0.6	0.3		0.7	3.3	3.6	11.0												
22																											
23	5 25	11 37	5 22b	11 42a	6.2	8.2	3.9	6.9	0.6	0.3		0.7	3.1	3.4	12.0												
24	5 50	12 00	5 47b	12 05a	6.1	8.0	3.8	6.8	0.6	0.3		0.7	3.0	3.3	12.5												
25	4 45	10 57	4 42b	11 02a	6.5	8.5	4.1	7.2	0.6	0.3		0.7	3.2	3.5	13.0												
26	4 05	10 17	4 02b	10 22a	6.7	8.8	4.2	7.4	0.6	0.3		0.7	3.4	3.6	15.0												
27	5 00	11 12	4 57b	11 17a	6.0	7.9	3.7	6.7	0.6	0.3		0.6	3.0	3.3	16.5												
28																											
29																											
30	4 33	10 50	4 30b	10 56a	5.3	7.0	3.8	6.0	0.6	0.3	15 00	0.6	2.6	2.9	15.5												
31	4 20	10 32	4 17b	10 37a	6.5	8.5	4.1	7.2	0.6	0.3		0.7	3.2	3.5	15.0												
32	4 17	10 29	4 14b	10 34a	5.9	7.8	3.7	6.6	0.6	0.3		0.6	3.0	3.2	14.0												
33	4 10	10 22	4 07b	10 27a	5.8	7.6	3.6	6.5	0.6	0.3		0.6	2.9	3.2	12.0												
34	3 50	10 00	3 46b	10 07a	4.6	6.0	2.9	5.2	0.5	0.3		0.5	2.3	2.6	12.0												
35																											
36	3 50	10 00	3 47b	10 06a	4.8	6.3	3.0	5.4	0.5	0.3		0.6	2.4	2.7	11.5												
37	3 35	9 47	3 32b	9 53a	4.9	6.4	3.1	5.5	0.5	0.3		0.6	2.4	2.7	11.5												
38	3 25	9 37	3 21b	9 44a	4.6	6.0	2.9	5.2	0.5	0.3		0.5	2.3	2.6	11.5												
39	3 20	9 32	3 17b	9 38a	4.3	5.6	2.7	4.9	0.5	0.3		0.5	2.2	2.4	11.0												
40	3 10	9 23	3 07b	9 29a	4.9	6.4	3.1	5.5	0.5	0.3		0.6	2.4	2.7	11.0												
41																											
42	3 15	9 27	3 12b	9 32a	5.7	7.5	3.6	6.4	0.6	0.3		0.6	2.8	3.1	11.5												
43	2 55	9 07	2 51b	9 15a	3.2	4.2	2.0	3.7	0.4	0.2		0.5	1.6	1.8	10.0												
44	2 50	9 00	2 46b	9 09a	3.0	4.0	1.9	3.5	0.4	0.2		0.4	1.5	1.7	10.0												
45	2 40	8 52	2 36b	8 59a	3.8	5.0	2.4	4.8	0.5	0.2		0.5	1.9	2.1	9.5												
46	2 30	8 42	2 27b	8 47a	4.0	5.3	2.5	4.5	0.5	0.2		0.5	2.0	2.2	9.0												
47																											
48	2 20	8 30	2 17b	8 35a	7.0	9.2	4.4	7.7	0.6	0.3		0.7	3.5	3.8	8.5												
49	2 30	8 42	2 25b	8 49a	3.7	4.9	2.3	4.2	0.5	0.2		0.5	1.8	2.0	8.0												
50	2 50	9 00	2 46b	9 08a	3.2	4.2	2.0	3.7	0.4	0.2		0.5	1.6	1.8	7.5												
51	1 55	7 47	1 33b	7 52a	4.0	5.3	2.5	4.5	0.5	0.2		0.5	2.0	2.2	6.5												
52	1 50	8 00	1 46b	8 09a	3.0	4.0	1.9	3.5	0.4	0.2		0.4	1.5	1.7	6.5												
53																											
54	2 50	9 00	2 47b	9 06a	4.4	5.8	2.5	5.0	0.5	0.3		0.5	2.2	2.5	5.0												
55	2 55	9 05	2 52b	9 11a	4.9	6.4	3.1	5.5	0.5	0.3		0.6	2.4	2.7	2.0												
56	2 20	8 32	2 16b	8 39a	3.6	4.7	2.2	4.1	0.5	0.2		0.5	1.8	2.0	2.0												
57	2 25	8 47	2 32b	8 53a	4.5	5.9	2.8	5.1	0.5	0.3		0.5	2.2	2.5	2.0 W.												
58	4 00	10 12	3 54b	10 23a	1.4	1.8	0.9	1.7	0.3	0.1		0.3	0.7	0.8	2.5 E.												
59																											
60	8 20	2 06	8 33b	1 27b	1.5	2.0	0.9	1.9	0.3	0.1		0.3	1.0	0.9	East.												
61	2 00	7 30	2 20b	7 37a	1.4	1.7	1.1	3.5	0.8	0.6	19 36	1.0	0.9	1.7	4.0												
62	6 30	0 00	6 42b	-0 32b	3.4	4.0	2.7	4.7	1.8	0.8		2.0	2.0	2.1	6.0												
63															8.0												
64																											
65	6 50	12 21	7 02b	11 38a	1.8	2.1	1.4	2.8	1.4	0.6	20 09	1.4	1.0	1.2	8.0												
66	6 00	11 40	6 13b	11 06a	3.0	3.6	2.3	4.2	1.7	0.7		1.9	1.8	1.9	8.0												
67	4 30	10 30	4 40b	10 02a	4.4	5.2	3.4	5.9	2.1	0.9		2.3	2.6	2.7	7.5												
68	9 50	3 35	10 00b	3 07a	4.5	5.3	3.5	5.9	2.1	0.9		2.3	2.6	2.7	7.5												
69	9 48	3 33	9 30b	3 43a	7.6	9.8	5.1	7.7	1.3	2.1		2.5	4.9	4.5	8.5												
70	6 00	0 00	5 46b	0 08a	12.3	15.8	8.2	18.9	1.7	2.7		3.2	7.9	6.7	11.5												



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
SOUTH AMERICA (SOUTH AND EAST COASTS)—Continued.												
PATAGONIA.												
East coast.		South.	West.				Local time.		Mean Low Water Springs.			
		°	°	h. m.			h. m.	h. m.	feet.	feet.		
1	Point Medano, Rio Negro Entr. ....	41 03	62 46	4 11	Sitka .....	159	+10 33	+10 34	+ 2.2	-1.6	1.49	
2	Port San Antonio, San Matias Gulf.	40 46	64 47	4 19	Sitka .....	159	+10 19	+10 20	+10.0	-0.6	2.37	
3	Port San Josef, San Matias Gulf.	42 23	64 20	4 17	Sitka .....	159	+ 9 49	+ 9 50	+14.6	0.0	2.90	
4	Port Madryn, Nuevo Gulf .....	42 45	64 59	4 20	Sitka .....	159	+ 6 49	+ 6 49	+ 0.8	-1.8	1.33	
5	Port Santa Elena .....	44 31	65 22	4 21	Sitka .....	159	+ 3 34	+ 3 35	+ 4.0	-1.4	1.69	
6	Port Desire .....	47 45	65 55	4 24	Sitka .....	159	- 0 16	- 0 16	+ 5.4	-1.2	1.85	
7	Port San Julian .....	49 15	67 42	4 31	Sitka .....	159	- 2 06	- 2 05	+15.4	0.0	2.98	
8	Port Santa Cruz .....	50 08	68 23	4 34	Sitka .....	159	- 3 21	- 3 20	+24.3	+1.0	4.00	
9	Coy Inlet .....	50 58	69 10	4 37	Sitka .....	159	- 3 41	- 3 41	+24.6	+1.2	4.03	
10	Port Gallegos .....	51 33	69 01	4 36	Sitka .....	159	- 4 01	- 4 00	+29.6	+1.8	4.61	
MAGELLAN STRAIT.												
11	Sarmiento Bank .....	52 30	68 03	4 32	Sitka .....	159	- 4 41	- 4 40	+23.2	+1.0	3.88	
12	Cape Virgins .....	52 19	68 22	4 33	Sitka .....	159	- 4 23	- 4 22	+23.6	+1.0	3.91	
13	Dungeness .....	52 24	68 26	4 34	Sitka .....	159	- 4 22	- 4 21	+24.1	+1.1	3.97	
14	Cape Esprifru Santo .....	52 39	68 34	4 34	Sitka .....	159	- 4 21	- 4 20	+23.8	+1.0	3.93	
15	Catherine Point .....	52 32	68 45	4 35	Sitka .....	159	- 4 17	- 4 16	+15.8	0.0	3.03	
16	Possession Bay, Stonewall Anch. ....	52 16	69 10	4 37	Sitka .....	159	- 4 06	- 4 03	+23.8	+1.0	3.93	
17	Direction Hill .....	52 21	69 29	4 38	Sitka .....	159	- 3 58	- 3 53	+22.8	+0.8	3.83	
18	First Narrows .....	52 30	69 36	4 38	Sitka .....	159	- 3 54	- 3 48	+23.8	+1.0	3.93	
19	Philip Bay, east side .....	52 40	69 37	4 38	Sitka .....	159	- 3 36	- 3 28	+ 5.0	-1.2	1.81	
20	St. Jago Bay .....	52 32	69 55	4 40	Sitka .....	159	- 3 27	- 3 18	+ 6.8	-1.0	2.02	
21	Gregory Bay .....	52 37	70 08	4 41	Sitka .....	159	- 3 18	- 3 08	+ 7.8	-1.0	2.12	
22	Second Narrows .....	52 45	70 17	4 41	Sitka .....	159	- 2 51	- 2 38	+ 8.5	-0.7	2.32	
23	Gracia Point .....	52 44	70 32	4 42	Sitka .....	159	- 2 34	- 2 21	- 3.8	-2.4	0.80	
24	Pecket Harbor .....	52 47	70 48	4 43	Sitka .....	159	- 2 13	- 2 00	- 4.7	-2.5	0.71	
25	Royal Road, Elizabeth Island .....	52 49	70 36	4 42	Sitka .....	159	- 2 17	- 2 04	- 3.8	-2.4	0.80	
26	Santa Magdalena Island .....	52 56	70 35	4 42	Sitka .....	159	- 2 16	- 2 03	- 2.1	-2.1	1.00	
27	Sandy Point .....	53 10	70 54	4 44	Sitka .....	159	- 1 38	- 1 25	- 6.5	-2.6	0.50	
28	Port Famine .....	53 38	70 59	4 44	Sitka .....	159	- 0 43	- 0 30	- 5.6	-2.6	0.61	
29	Cape San Isidro .....	53 47	70 55	4 44	Sitka .....	159	- 0 20	- 0 07	- 3.8	-2.4	0.80	
30	Cape Froward .....	53 54	71 18	4 45	Sitka .....	159	+ 0 12	+ 0 25	- 4.7	-2.5	0.71	
31	Woods Bay .....	53 48	71 38	4 47	Sitka .....	159	+ 0 39	+ 0 49	- 3.8	-2.4	0.80	
32	Port Gallant, Fortescue Bay .....	53 42	72 00	4 48	Sitka .....	159	+ 1 05	+ 1 13	- 3.8	-2.4	0.80	
33	Borja Bay .....	53 32	72 29	4 50	Sitka .....	159	+ 1 39	+ 1 44	- 6.0	-2.6	0.56	
34	Swallow Bay .....	53 30	72 48	4 51	Cape Horn .....	131	+10 46	+10 48	+ 0.2	0.0	1.07	
35	Playa Parda Cove .....	53 19	73 00	1 52	Cape Horn .....	131	+10 24	+10 24	- 0.3	-0.1	0.95	
36	Port Angosto .....	53 14	73 22	4 53	Cape Horn .....	131	+10 02	+10 01	- 0.7	-0.1	0.86	
37	Sylvia Cove .....	52 59	73 33	4 54	Cape Horn .....	131	+ 9 53	+ 9 52	- 0.4	0.0	0.90	
38	Port Tamar .....	52 56	73 45	4 55	Cape Horn .....	131	+ 9 48	+ 9 47	+ 1.2	0.0	1.26	
39	Tuesday Bay .....	52 51	74 27	4 58	Cape Horn .....	131	+ 9 37	+ 9 36	+ 1.0	0.0	1.24	
40	Cape Pillar .....	52 43	71 42	4 59	Cape Horn .....	131	+ 9 25	+ 9 25	- 0.7	-0.1	0.86	
DETACHED ISLANDS.												
41	Rocas Reef Light .....	3 51	33 49	2 15	Kingstown .....	313	+ 6 42	+ 6 55	- 1.0	+0.2	0.85	
42	Fernando Noronha .....	3 50	32 25	2 10	Kingstown .....	313	+ 6 37	+ 6 50	- 4.6	-0.2	0.51	
43	Trinidad Islands .....	20 30	29 22	1 57	Apia .....	209	- 3 04	- 3 04	+ 0.6	+0.2	1.18	
44	Martin Vaz Islets .....	20 29	28 51	1 56	Apia .....	209	- 3 09	- 3 09	+ 0.2	+0.2	1.02	
45	South Georgia (Royal Bay) .....	51 31	36 01	2 24	Singapore .....	193	- 2 40	- 2 32	- 4.8	-1.0	0.29	
FALKLAND ISLANDS.												
46	Port Louis, Berkeley Sound .....	51 29	58 00	3 52	Sitka .....	159	- 7 11	- 7 27	- 7.1	-2.7	0.43	
47	Bay of Harbors .....	52 15	59 16	3 57	Sitka .....	159	- 6 52	- 6 51	- 6.7	-2.7	0.48	
48	Port Stephens .....	52 12	60 40	4 03	Sitka .....	159	- 5 07	- 5 06	- 4.6	-2.3	0.71	
49	Port Egmont .....	51 18	60 05	4 00	Sitka .....	159	- 5 22	- 5 21	- 1.4	-2.0	1.07	
TIERRA DEL FUEGO.												
50	San Sebastian Bay .....	53 15	68 27	4 34	Sitka .....	159	- 5 51	- 5 50	+ 6.8	-1.0	2.02	
51	Cape Penas .....	53 52	67 33	4 30	Sitka .....	159	- 6 09	- 6 08	- 0.6	-2.0	1.19	
52	Cape San Diego .....	54 42	65 10	4 21	Sitka .....	159	- 8 21	- 8 20	- 2.1	-2.1	1.00	
53	Staten Island, east end .....	54 45	63 46	4 15	Tientsin Entrance .....	177	-10 36	-11 14	- 1.5	-1.1	0.94	
54	Goree Road .....	55 12	67 05	4 28	Tientsin Entrance .....	177	-11 04	-11 42	- 2.4	-1.2	0.82	
55	St. Martin Cove, Hermite I. ....	55 51	67 33	4 30	Cape Horn .....	131	+ 0 34	+ 0 16	0.0	0.0	1.02	
56	CAPE HORN (Orange Bay) .....	55 31	68 05	4 32	Cape Horn .....	131	0 00	0 00	0.0	0.0	1.00	
57	Diego Ramirez Islands .....	56 28	68 43	4 35	Cape Horn .....	131	+ 0 17	+ 0 17	+ 0.2	0.0	1.07	
58	New Year Sound .....	55 30	69 06	4 36	Cape Horn .....	131	- 0 18	- 0 13	+ 0.2	0.0	1.07	
59	Noir Island .....	54 26	73 03	4 52	Cape Horn .....	131	- 1 12	- 1 12	0.0	0.0	1.02	
60	Week Island .....	53 12	74 21	4 57	Cape Horn .....	131	- 1 42	- 1 42	0.0	0.0	1.00	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np)	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	10 50	4 38	10 35b	4 46a	11.5	14.7	7.7	13.0	1.6	2.6	.....	3.1	7.4	6.7	12.5
2	10 35	4 23	10 24b	4 30a	18.3	23.5	12.3	20.2	2.1	3.3	.....	3.9	11.8	10.4	13.5
3	10 05	3 53	9 55b	3 59a	22.4	28.7	15.0	24.5	2.3	3.6	.....	4.3	14.4	12.5	13.5
4	7 05	0 52	6 50b	1 01a	10.3	13.2	6.9	11.7	1.5	2.5	.....	2.9	6.6	6.0	13.5
5	3 50	10 03	3 37b	10 11b	13.1	16.8	8.8	14.7	1.7	2.8	.....	3.3	8.4	7.6	14.5
6	0 00	6 12	0 13b	6 19b	14.3	18.3	9.6	16.0	1.8	2.9	.....	3.4	9.2	8.4	16.0
7	10 35	4 23	10 25a	4 29b	23.0	29.5	15.4	25.2	2.3	3.7	.....	4.4	14.8	12.9	17.0
8	9 20	3 08	9 10a	3 13b	30.9	39.6	20.7	33.4	2.7	4.3	.....	5.1	19.8	17.1	17.5
9	9 00	2 47	8 51a	2 52b	31.2	40.0	20.9	33.7	2.7	4.3	.....	5.1	20.0	17.2	18.0
10	8 40	2 28	8 32a	2 33b	35.6	45.6	23.9	38.3	2.9	4.6	.....	5.4	22.8	19.5	18.5
11	8 00	1 48	7 51a	1 53b	30.0	38.5	20.1	32.4	2.6	4.2	.....	5.0	19.2	16.6	18.0
12	8 18	2 06	8 09a	2 11b	30.2	38.7	20.2	32.6	2.6	4.2	.....	5.0	19.4	16.7	18.0
13	8 19	2 07	8 10a	2 12b	30.7	39.4	20.6	33.2	2.7	4.3	.....	5.0	19.7	17.0	18.5
14	8 20	2 08	8 11a	2 13b	30.4	39.0	20.4	32.8	2.6	4.2	.....	5.0	19.5	16.8	18.5
15	8 24	2 12	8 14a	2 16b	28.4	30.0	15.7	25.6	2.3	3.7	.....	4.4	15.0	13.1	18.5
16	8 35	2 25	8 26a	2 30b	30.4	39.0	20.4	32.8	2.6	4.2	.....	5.0	19.5	16.8	18.5
17	8 43	2 35	8 34a	2 40b	29.6	38.0	19.8	32.0	2.6	4.2	.....	5.0	19.0	16.4	19.0
18	8 47	2 40	8 38a	2 45b	30.4	39.0	20.4	32.8	2.6	4.2	.....	5.0	19.5	16.8	19.0
19	9 05	3 00	8 52a	3 07b	14.0	18.0	9.4	15.7	1.8	2.9	.....	3.4	9.0	8.1	19.0
20	9 14	3 10	9 02a	3 17b	15.6	20.0	10.5	17.4	1.9	3.0	.....	3.6	10.0	8.9	19.0
21	9 23	3 20	9 11a	3 27b	16.4	21.0	11.0	18.2	1.9	3.1	.....	3.7	10.5	9.3	19.0
22	9 50	3 50	9 39a	3 57b	17.9	23.0	12.0	19.8	2.0	3.3	.....	3.8	11.5	10.2	19.5
23	10 07	4 07	9 47a	4 18b	6.2	7.9	4.2	7.3	1.2	1.9	.....	2.3	4.0	3.8	19.5
24	10 28	4 28	10 07a	4 40b	5.5	7.0	3.7	5.5	1.1	1.8	.....	2.1	3.5	3.4	19.5
25	10 24	4 24	10 04a	4 35b	6.2	8.0	4.2	7.3	1.2	1.9	.....	2.3	4.0	3.8	19.5
26	10 25	4 25	10 07a	4 35b	7.7	9.9	5.2	8.9	1.3	2.1	.....	2.5	5.0	4.6	19.5
27	11 03	5 03	10 38a	5 17b	3.9	5.0	2.6	4.8	0.9	1.5	.....	1.8	2.5	2.6	19.5
28	11 58	5 58	11 35a	6 11b	4.7	6.0	3.1	5.7	1.0	1.7	.....	2.0	3.0	3.0	20.0
29	12 21	6 21	12 01a	6 32b	6.2	8.0	4.2	7.3	1.2	1.9	.....	2.3	4.0	3.8	20.0
30	0 28	6 53	0 07b	7 05b	5.5	7.0	3.7	6.5	1.1	1.8	.....	2.1	3.5	3.4	20.0
31	0 54	7 16	0 34b	7 27b	6.2	8.0	4.2	7.3	1.2	1.9	.....	2.3	4.0	3.8	20.5
32	1 20	7 40	1 00b	7 51b	6.2	8.0	4.2	7.3	1.2	1.9	.....	2.3	4.0	3.8	20.5
33	1 54	8 11	1 30b	8 25b	4.8	5.5	2.9	5.2	1.0	1.6	.....	1.9	2.8	2.8	20.5
34	1 53	8 08	1 38b	8 30b	4.5	5.0	3.9	6.0	1.7	1.2	.....	2.1	2.5	2.9	20.5
35	1 31	7 44	1 15b	8 07b	4.0	4.5	3.5	5.4	1.6	1.1	.....	2.0	2.2	2.6	20.5
36	1 09	7 21	0 52b	7 45b	3.6	4.0	3.1	4.9	1.5	1.1	.....	1.9	2.0	2.4	21.0
37	1 00	7 12	0 43b	7 36b	3.8	4.3	3.3	5.2	1.6	1.1	.....	2.0	2.2	2.5	21.0
38	0 55	7 07	0 41b	7 27b	5.8	6.4	4.6	6.9	1.9	1.3	.....	2.3	3.0	3.4	21.0
39	0 44	6 56	0 30b	7 16b	5.2	5.8	4.5	6.8	1.9	1.3	.....	2.3	2.9	3.3	21.0
40	0 32	6 45	0 15b	7 09b	3.6	4.0	3.1	4.9	1.5	1.1	.....	1.9	2.0	2.4	21.5
41	5 05	11 18	.....	.....	7.5	10.0	4.6	.....	.....	.....	.....	.....	5.0	.....	West. 16.0
42	5 00	11 13	.....	.....	4.5	6.0	2.7	.....	.....	.....	.....	.....	3.0	.....	17.0
43	3 40	9 53	.....	.....	8.0	4.0	1.8	.....	.....	.....	.....	.....	2.0	.....	18.0
44	3 35	9 48	.....	.....	2.6	3.5	1.6	.....	.....	.....	.....	.....	1.8	.....	18.0
45	7 19	1 11	6 39a	1 23b	1.7	2.3	0.8	2.1	0.3	1.0	2 24	1.0	1.2	1.2	2.0
46	5 31	11 27	5 04a	11 43a	3.3	4.3	2.2	4.1	0.9	1.4	1 24	1.7	2.2	2.2	East. 13.0
47	5 50	12 08	5 25a	12 18a	3.7	4.8	2.5	4.6	0.9	1.5	.....	1.7	2.4	2.4	13.5
48	7 35	1 23	7 14a	1 35b	5.5	7.1	3.7	6.5	1.1	1.8	.....	2.1	3.6	3.4	14.5
49	7 20	1 08	7 03a	1 18b	8.3	10.7	5.6	9.6	1.4	2.2	.....	2.6	5.4	4.9	14.0
50	6 50	0 38	6 38a	0 45b	15.6	20.0	10.5	17.4	1.9	3.0	.....	3.6	10.0	8.9	18.5
51	6 32	0 20	6 16a	0 29b	9.2	11.8	6.2	10.6	1.5	2.3	.....	2.8	5.9	5.4	18.0
52	4 20	10 33	4 02a	10 43a	7.7	9.9	5.2	8.9	1.3	2.1	.....	2.5	5.0	4.6	17.0
53	4 19	10 32	4 07a	10 49a	6.9	7.8	6.0	8.7	2.1	1.4	.....	2.6	3.9	4.2	16.5
54	3 50	10 08	3 37a	10 22a	6.0	6.7	5.2	7.7	2.0	1.4	.....	2.5	3.4	3.7	18.0
55	4 07	10 02	3 52a	10 24a	4.3	4.8	3.8	5.8	1.7	1.2	1 19	2.1	2.4	2.8	18.5
56	3 33	9 46	3 11a	9 22a	4.2	4.8	3.4	5.9	2.0	1.8	0 48	2.6	2.4	2.9	19.0
57	3 50	10 03	3 35a	10 24a	4.5	5.0	3.9	6.0	1.7	1.2	.....	2.1	2.5	2.9	19.5
58	3 20	9 33	3 05a	9 54a	4.5	5.0	3.9	6.0	1.7	1.2	.....	2.1	2.5	2.9	19.0
59	2 20	8 33	2 04a	8 55a	4.3	4.8	3.7	5.7	1.7	1.1	.....	2.1	2.4	2.7	21.0
60	1 50	8 03	1 34a	8 25a	4.2	4.7	3.7	5.6	1.7	1.1	.....	2.1	2.4	2.7	21.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			H.W.	L.W.	H.W.	L.W.	
SOUTH AMERICA (West Coast).											
PATAGONIA—continued.											
West coast.		South.	West.				Local time.		Mean Low Water Springs.		
		o	o	h. m.			h. m.	h. m.	feet.	feet.	
1	Evangelistas Island .....	52 21	75 08	5 01	Cape Horn .....	131	-2 37	-2 37	-0.4	0.0	0.92
2	Guia Narrows .....	50 45	74 27	4 58	Cape Horn .....	131	-1 22	-0 55	+2.0	0.0	1.45
3	Port Henry, Gulf of Trinidad .....	50 08	75 18	5 01	Cape Horn .....	131	-3 02	-3 00	-0.3	-0.1	0.95
4	English Narrows .....	49 04	74 21	4 57	Cape Horn .....	131	-2 32	-2 05	+1.2	0.0	1.26
5	Port Barbara, Penas Gulf .....	48 01	75 24	5 02	Cape Horn .....	131	-3 17	-3 15	+0.4	0.0	1.12
6	Port Otway, Penas Gulf .....	46 54	75 22	5 01	Cape Horn .....	131	-3 22	-3 20	+0.4	0.0	1.12
7	San Andres Bay .....	46 28	75 30	5 02	Cape Horn .....	131	-3 27	-3 25	0.0	0.0	1.02
8	Cape Taitao, Anna Pink Bay .....	45 47	75 06	5 00	Cape Horn .....	131	-3 32	-3 32	-0.4	0.0	0.98
9	Vallenar Road .....	45 16	74 35	4 58	Cape Horn .....	131	-3 42	-3 42	-0.4	0.0	0.93
10	Port Low .....	43 50	73 57	4 56	Cape Horn .....	131	-3 37	-3 35	+1.4	0.0	1.31
CHILE.											
11	Huafu or No Mans Island .....	43 36	74 43	4 59	Valparaiso .....	135	+2 33	+2 34	+1.8	+0.2	1.55
12	Cucao Bay, Chiloe Island .....	42 40	74 06	4 56	Valparaiso .....	135	+2 28	+2 27	+1.1	+0.1	1.31
13	Port Quellon, Chiloe Island .....	43 08	73 39	4 55	Valparaiso .....	135	+3 23	+3 24	+9.6	-1.2	3.75
14	Castro, Chiloe Island .....	42 28	73 46	4 55	Valparaiso .....	135	+3 49	+3 55	+12.5	-1.5	4.61
15	Calbuco, Ancud Gulf .....	41 47	73 11	4 53	Valparaiso .....	135	+3 58	+4 09	+9.6	+1.2	3.78
16	Port Montt, Reloncavi Sound .....	41 30	72 56	4 52	Valparaiso .....	135	+3 26	+3 37	+13.4	+1.6	4.84
17	Chacao Narrows .....	41 49	73 32	4 54	Valparaiso .....	135	+3 38	+3 49	+10.7	+1.3	4.08
18	Port San Carlos de Ancud, Chiloe I. ....	41 52	73 51	4 55	Valparaiso .....	135	+2 52	+2 54	+1.8	+0.2	1.51
19	Maulin, Maulin River .....	41 36	73 36	4 54	Valparaiso .....	135	+3 08	+3 10	+3.6	+0.6	2.00
20	Bueno River Entrance .....	40 14	73 42	4 55	Valparaiso .....	135	+2 48	+2 47	+2.9	+0.3	1.84
21	Chalhuin Bay .....	39 58	73 37	4 54	Valparaiso .....	135	+1 23	+1 22	+0.4	0.0	1.09
22	Corral, Port Valdivia .....	39 53	73 27	4 54	Valparaiso .....	135	+0 48	+0 47	+1.4	+0.2	1.41
23	Valdivia .....	39 50	73 18	4 53	Valparaiso .....	135	+1 48	+1 44	0.0	0.0	0.99
24	Queule .....	39 23	73 14	4 53	Valparaiso .....	135	+0 41	+0 39	+0.8	0.0	1.25
25	Imperial or Cautin River Entrance .....	38 48	73 23	4 54	Valparaiso .....	135	+0 23	+0 21	+1.0	0.0	1.28
26	Mocha Island .....	38 20	73 57	4 56	Valparaiso .....	135	+0 43	+0 41	-0.6	-0.2	0.86
27	Lebu, Lebu River .....	37 37	73 42	4 55	Valparaiso .....	135	+0 38	+0 36	+0.8	0.0	1.25
28	Yafiez Cove .....	37 22	73 41	4 55	Valparaiso .....	135	+0 33	+0 29	+1.2	0.0	1.35
29	Santa Maria Island Light .....	37 03	73 32	4 54	Valparaiso .....	135	+0 33	+0 29	+1.8	+0.2	1.55
30	Lota, Arauco Bay .....	37 06	73 11	4 53	Valparaiso .....	135	+0 28	+0 24	+0.8	0.0	1.25
31	Talcahuano, Concepcion Bay .....	36 43	73 08	4 53	Valparaiso .....	135	+0 27	+0 25	+1.2	0.0	1.35
32	Tomé, Concepcion Bay .....	36 37	72 58	4 52	Valparaiso .....	135	+0 28	+0 27	+1.0	0.0	1.28
33	Dichato, Collumo Bay .....	36 32	72 58	4 52	Valparaiso .....	135	+0 29	+0 29	+0.8	0.0	1.25
34	Buchupureo .....	36 04	72 47	4 51	Valparaiso .....	135	+0 30	+0 31	-0.7	-0.1	0.79
35	Curanipe .....	35 48	72 38	4 51	Valparaiso .....	135	+0 44	+0 44	-0.5	-0.1	0.86
36	Maule River Entrance .....	35 19	72 25	4 50	Valparaiso .....	135	+0 08	+0 09	-0.3	-0.1	0.92
37	Constitucion, Maule River .....	35 20	72 24	4 50	Valparaiso .....	135	+0 29	+0 30	0.0	0.0	0.99
38	Llico .....	34 45	72 07	4 48	Valparaiso .....	135	+0 20	+0 22	+0.1	-0.1	1.05
39	Pichilemo .....	34 23	72 00	4 48	Valparaiso .....	135	+0 16	+0 16	0.0	0.0	1.02
40	Matanza Anchorage .....	33 58	71 54	4 48	Valparaiso .....	135	+0 12	-0 06	0.0	0.0	1.02
41	Toro Point .....	33 45	71 48	4 47	Valparaiso .....	135	+0 06	+0 09	-0.2	-0.2	0.95
42	Juan Fernandez Island .....	33 38	71 53	5 16	Valparaiso .....	135	-0 06	-0 05	-0.2	0.0	0.95
43	Port San Antonio .....	33 34	71 39	4 47	Valparaiso .....	135	+0 07	+0 08	0.0	0.0	1.02
44	Quintal Road .....	33 11	71 42	4 47	Valparaiso .....	135	+0 02	+0 03	0.0	0.0	0.99
45	VALPARAISO .....	33 02	71 39	4 47	Valparaiso .....	135	0 00	0 00	0.0	0.0	1.00
46	Quintero Bay .....	32 46	71 31	4 46	Valparaiso .....	135	-0 02	-0 01	+0.1	-0.1	1.05
47	Port Papudo .....	32 30	71 28	4 46	Valparaiso .....	135	-0 05	-0 04	+0.1	-0.1	1.05
48	Pichidandul .....	32 06	71 33	4 46	Valparaiso .....	135	-0 07	-0 06	0.0	0.0	0.99
49	Vilos .....	31 54	71 32	4 46	Valparaiso .....	135	-0 11	-0 10	+0.2	0.0	1.09
50	Oscuro Cove .....	31 28	71 37	4 46	Valparaiso .....	135	-0 17	-0 16	+0.4	0.0	1.15
51	Tongol .....	30 15	71 31	4 46	Valparaiso .....	135	-0 22	-0 21	+0.1	-0.1	1.05
52	Guayacan, Port Herradura .....	29 58	71 23	4 46	Valparaiso .....	135	-0 27	-0 26	+0.7	+0.1	1.18
53	Coquimbo .....	29 57	71 22	4 45	Valparaiso .....	135	-0 39	-0 38	+0.8	0.0	1.25
54	Totorillo .....	29 29	71 21	4 45	Valparaiso .....	135	-0 47	-0 46	+0.8	0.0	1.25
55	Pena Blanco Road .....	28 43	71 23	4 46	Valparaiso .....	135	-1 08	-1 10	+0.4	0.0	1.09
56	Port Huasco .....	28 27	71 15	4 45	Valparaiso .....	135	-1 14	-1 16	+0.8	0.0	1.25
57	Port Carrizal Bajo .....	28 04	71 12	4 45	Valparaiso .....	135	-0 47	-0 48	+0.8	0.0	1.25
58	Port Copiapo .....	27 20	70 59	4 44	Valparaiso .....	135	-1 16	-1 18	+1.0	0.0	1.28
59	Caldera .....	27 04	70 52	4 43	Valparaiso .....	135	-0 47	-0 49	+0.8	0.0	1.25
60	Port Flamenco .....	26 34	70 44	4 43	Valparaiso .....	135	-0 37	-0 39	+1.0	0.0	1.28
61	Chañaral de las Animas .....	26 20	70 41	4 43	Valparaiso .....	135	-0 32	-0 34	+0.8	0.0	1.25
62	Guayata Bay .....	25 39	70 44	4 43	Valparaiso .....	135	-0 27	-0 29	+1.0	0.0	1.28
63	Port Taital .....	25 25	70 34	4 42	Valparaiso .....	135	-0 17	-0 19	+0.8	0.0	1.25
64	Grande Point .....	25 07	70 30	4 42	Valparaiso .....	135	-0 02	-0 04	+1.0	0.0	1.28
65	Paposo .....	25 03	70 30	4 42	Valparaiso .....	135	-0 07	-0 09	+0.8	0.0	1.25

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	0 55	7 06	0 39a	7 31a	3.9	4.4	3.4	5.8	1.6	1.1	.....	2.0	2.2	2.5	21.0
2	2 10	8 40	1 57a	9 08a	6.1	6.9	5.3	7.5	2.0	1.4	.....	2.5	3.4	3.8	20.5
3	0 30	6 45	0 14a	7 07a	4.0	4.5	3.5	5.4	1.6	1.1	.....	2.0	2.2	2.6	20.5
4	1 00	7 40	0 46a	7 59a	5.3	6.0	4.6	6.9	1.9	1.3	.....	2.3	3.0	3.3	20.0
5	0 15	6 30	0 06a	6 51a	4.7	5.3	4.1	6.2	1.8	1.2	.....	2.2	2.6	3.0	20.0
6	0 10	6 25	— 0 05a	6 46a	4.7	5.3	4.1	6.2	1.8	1.2	.....	2.2	2.6	3.0	19.5
7	0 05	6 20	— 0 11a	6 42a	4.3	4.8	3.7	5.7	1.7	1.1	.....	2.1	2.4	2.7	20.0
8	0 00	6 13	— 0 16a	6 36a	3.9	4.4	3.4	5.3	1.6	1.1	.....	2.0	2.2	2.5	19.5
9	12 15	6 08	11 56b	6 26a	3.9	4.4	3.4	5.3	1.6	1.1	.....	2.0	2.2	2.5	19.0
10	12 20	6 10	12 07b	6 29a	5.5	6.2	4.8	7.1	1.9	1.3	.....	2.3	3.1	3.4	18.0
11	12 10	6 00	12 06b	6 29a	4.7	6.1	3.1	5.7	2.1	0.5	.....	2.1	3.0	2.5	18.5
12	12 05	5 58	11 59b	6 28a	4.0	5.2	2.6	4.9	1.9	0.4	.....	1.9	2.6	2.1	18.0
13	0 35	6 50	0 31a	7 14a	11.4	14.7	7.5	13.0	3.3	0.7	.....	3.3	7.4	5.9	18.0
14	0 01	6 21	— 0 02a	6 37a	14.0	18.0	9.1	15.7	3.6	0.8	.....	3.6	9.0	7.2	18.0
15	1 10	7 35	1 06a	7 58a	11.5	14.8	7.5	13.1	3.3	0.7	.....	3.3	7.4	6.0	17.5
16	0 38	7 03	0 35a	7 19a	14.7	19.0	9.7	16.5	3.7	0.8	.....	3.7	9.5	7.6	17.5
17	0 50	7 15	0 47a	7 32a	12.4	16.0	8.1	14.0	3.4	0.7	.....	3.4	8.0	6.4	17.5
18	0 04	6 20	— 0 01a	6 49a	4.6	5.9	3.0	5.6	2.1	0.5	.....	2.1	3.0	2.4	17.5
19	0 20	6 36	0 15a	7 01a	6.1	7.9	4.0	7.2	2.4	0.5	.....	2.4	4.0	3.2	17.5
20	0 00	6 13	— 0 05a	6 39a	5.6	7.2	3.7	6.7	2.3	0.5	.....	2.3	3.6	2.9	17.5
21	11 00	4 48	10 54b	5 23a	3.3	4.3	2.2	4.2	1.8	0.4	.....	1.8	2.2	1.8	17.0
22	10 25	4 13	10 20b	4 43a	4.3	5.6	2.8	5.2	2.0	0.4	.....	2.0	2.8	2.3	17.0
23	11 25	5 10	11 18b	5 46a	3.0	3.9	2.0	3.8	1.7	0.4	.....	1.7	2.0	1.6	17.0
24	10 18	4 06	10 12b	4 37a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	17.0
25	10 00	3 47	9 54b	4 18a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	17.0
26	10 20	4 07	10 18b	4 46a	2.6	3.3	1.7	3.3	1.6	0.3	.....	1.6	1.6	1.4	17.0
27	10 15	4 02	10 09b	4 34a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	16.5
28	10 10	3 55	10 04b	4 26a	4.1	5.3	2.7	5.0	2.0	0.4	.....	2.0	2.6	2.3	16.5
29	10 10	3 55	10 05b	4 24a	4.7	6.0	3.0	5.7	2.1	0.5	.....	2.1	3.0	2.4	16.5
30	10 05	3 50	9 59b	4 22a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	16.5
31	10 04	3 51	9 58b	4 22a	4.1	5.3	2.7	5.0	2.0	0.4	.....	2.0	2.6	2.3	16.0
32	10 05	3 53	9 59b	4 24a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	16.0
33	10 06	3 55	10 00b	4 27a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	16.0
34	10 07	3 57	10 00b	4 26a	2.4	3.1	1.6	3.1	1.5	0.3	.....	1.5	1.6	1.3	16.0
35	10 21	4 10	10 14b	4 49a	2.6	3.4	1.7	3.3	1.6	0.3	.....	1.6	1.7	1.4	16.0
36	9 45	3 35	9 38b	4 11a	2.3	3.6	1.8	3.6	1.6	0.4	.....	1.6	1.8	1.5	15.5
37	10 06	3 56	9 59b	4 32a	3.0	3.9	2.0	3.8	1.7	0.4	.....	1.7	2.0	1.6	15.5
38	9 57	3 48	9 51b	4 22a	3.2	4.1	2.1	4.0	1.7	0.4	.....	1.7	2.0	1.7	15.0
39	9 53	3 42	9 47b	4 17a	3.1	4.0	2.0	3.9	1.7	0.4	.....	1.7	2.0	1.7	15.0
40	9 49	3 20	9 43b	3 55a	3.1	4.0	2.0	3.9	1.7	0.4	.....	1.7	2.0	1.7	15.0
41	9 45	3 35	9 38b	4 12a	2.9	3.7	1.9	3.7	1.6	0.4	.....	1.7	1.8	1.5	15.0
42	9 30	3 20	9 23b	3 57a	2.9	3.8	1.9	3.7	1.6	0.4	.....	1.7	1.9	1.6	17.0
43	9 44	3 34	9 38b	4 09a	3.1	4.0	2.0	3.9	1.7	0.4	.....	1.7	2.0	1.7	14.5
44	9 39	3 29	9 32b	4 06a	3.0	3.9	2.0	3.8	1.7	0.4	.....	1.7	2.0	1.6	14.5
45	9 37	3 26	9 30b	4 01a	3.0	3.9	2.0	3.8	1.7	0.4	21 02	1.7	2.0	1.6	14.5
46	9 35	3 25	9 29b	3 59a	3.2	4.1	2.1	4.0	1.7	0.4	.....	1.7	2.0	1.7	14.5
47	9 32	3 22	9 26b	3 56a	3.2	4.1	2.1	4.0	1.7	0.4	.....	1.7	2.0	1.7	14.5
48	9 30	3 20	9 23b	3 56a	3.0	3.9	2.0	3.8	1.7	0.4	.....	1.7	2.0	1.6	14.5
49	9 26	3 16	9 20b	3 51a	3.3	4.2	2.1	4.2	1.8	0.4	.....	1.8	2.1	1.7	14.0
50	9 20	3 10	9 14b	3 43a	3.5	4.5	2.3	4.4	1.8	0.4	.....	1.8	2.2	1.8	14.0
51	9 15	3 06	9 09b	3 39a	3.2	4.1	2.1	4.0	1.7	0.4	.....	1.7	2.0	1.7	14.0
52	9 10	3 00	9 04b	3 32a	3.6	4.7	2.4	4.5	1.8	0.4	.....	1.8	2.4	1.9	13.5
53	8 58	2 48	8 52b	3 20a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	13.5
54	8 50	2 40	8 44b	3 12a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	13.5
55	8 29	2 16	8 23b	2 51a	3.3	4.3	2.2	4.2	1.8	0.4	.....	1.8	2.2	1.8	13.0
56	8 23	2 10	8 17b	2 42a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	13.0
57	8 50	2 38	8 44b	3 10a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	13.0
58	8 21	2 08	8 15b	2 39a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	13.0
59	8 50	2 37	8 44b	3 09a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	12.5
60	9 00	2 47	8 54b	3 18a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	12.0
61	9 05	2 52	8 59b	3 24a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	12.0
62	9 10	2 57	9 04b	3 28a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	12.0
63	9 20	3 07	9 14b	3 39a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	12.0
64	9 35	3 22	9 29b	3 53a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	12.0
65	9 30	3 17	9 24b	3 49a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	12.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of ranges.	
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.		LW.
SOUTH AMERICA (West Coast).—Continued.											
CHILE—continued.		South.	West.								
		° ' "	° ' "	h. m.							
1	Blanco Encalada Road.....	24 22	70 34	4 42	Valparaiso.....	135	+0 13	+0 11	-0.4	0.0	0.89
2	Antofagasta, Moreno Bay.....	23 38	70 25	4 42	Valparaiso.....	135	-0 32	-0 34	+0.7	+0.1	1.18
3	San Luciano, Mejillones del Sur B.....	23 06	70 28	4 42	Valparaiso.....	135	-0 02	-0 04	0.0	0.0	0.99
4	Cobija.....	22 34	70 18	4 41	Valparaiso.....	135	+0 07	+0 05	0.0	0.0	1.02
5	Tocopilla.....	22 05	70 13	4 41	Valparaiso.....	135	-0 42	-0 44	+0.8	0.0	1.22
6	Point Lobos.....	21 05	70 13	4 41	Valparaiso.....	135	-0 37	-0 39	+0.8	0.0	1.25
7	Iquique.....	20 12	70 10	4 41	Valparaiso.....	135	-1 02	-1 04	+1.0	0.0	1.25
8	Buena Cove.....	19 52	70 09	4 41	Valparaiso.....	135	-1 02	-1 04	+1.3	+0.1	1.35
9	Pisagua River.....	19 33	70 14	4 41	Valparaiso.....	135	-1 05	-1 06	+1.0	0.0	1.25
10	Arica.....	18 28	70 20	4 41	Valparaiso.....	135	-1 48	-1 49	+1.4	+0.2	1.41
PERU.											
11	Ilo Road.....	17 35	71 23	4 46	Valparaiso.....	135	-1 42	-1 43	+1.2	0.0	1.35
12	Islay Road.....	16 58	72 10	4 49	Valparaiso.....	135	-1 58	-1 59	+2.0	+0.2	1.55
13	Port San Juan.....	15 20	75 09	5 01	Valparaiso.....	135	-2 50	-2 51	0.0	0.0	0.99
14	Pisco Bay.....	13 40	76 14	5 05	Valparaiso.....	135	-3 20	-3 21	-0.2	0.0	0.95
15	Callao Bay.....	12 02	77 09	5 09	Valparaiso.....	135	-3 49	-3 50	-0.4	0.0	0.99
16	Huacho Bay.....	11 08	77 35	5 10	Valparaiso.....	135	-4 07	-4 08	-0.8	-0.2	0.76
17	Guarmey Bay.....	10 05	78 08	5 13	Valparaiso.....	135	-4 28	-4 29	-1.7	-0.3	0.53
18	Ferrol Bay.....	9 07	78 33	5 14	Valparaiso.....	135	-4 46	-4 47	-1.7	-0.3	0.53
19	Port Malabrigo.....	7 40	79 24	5 18	Valparaiso.....	135	-5 17	-5 18	-1.7	-0.3	0.53
20	Eten Point.....	6 55	79 52	5 19	Valparaiso.....	135	-4 32	-4 33	-1.4	-0.2	0.63
21	Paíta.....	5 06	81 06	5 24	Valparaiso.....	135	+6 09	+6 08	-0.4	0.0	0.89
ECUADOR.											
22	Santa Clara Island.....	3 12	80 23	5 22	Valparaiso.....	135	-5 36	-5 37	+5.4	+0.6	2.57
23	Guayaquil.....	2 17	79 49	5 19	Valparaiso.....	135	-2 36	-2 25	+6.2	+0.8	2.80
24	Santa Elena Bay.....	2 11	80 56	5 24	Valparaiso.....	135	+5 49	+5 48	+3.6	+0.4	2.01
25	Port Manta.....	0 56	80 30	5 22	Valparaiso.....	135	+5 59	+5 58	+3.2	+0.4	1.91
26	Cape Pasado.....	0 22	80 30	5 22	Valparaiso.....	135	+6 04	+6 03	+5.4	+0.6	2.53
		North.									
27	Padernales.....	0 02	80 05	5 20	Valparaiso.....	135	+6 09	+6 08	+6.1	+0.7	2.76
28	Atacames Bay.....	0 53	79 54	5 20	Valparaiso.....	135	-6 11	-1 12	+7.8	+1.0	3.26
29	Santiago River.....	1 16	79 03	5 16	Valparaiso.....	135	+6 09	+6 08	+7.8	+1.0	3.26
Galapagos Islands.		South.									
30	Charles Island.....	1 13	90 30	6 02	Valparaiso.....	135	+5 03	+5 02	+1.8	+0.2	1.55
31	Iguana Cove, Albemarle Island.....	0 58	91 29	6 06	Valparaiso.....	135	+4 53	+4 52	+2.0	+0.2	1.55
32	Chatham Island.....	0 47	89 27	5 58	Valparaiso.....	135	+5 12	+5 11	+2.2	+0.2	1.64
33	Indefatigable Island.....	0 30	90 15	6 01	Valparaiso.....	135	+4 52	+4 51	+2.0	+0.2	1.55
34	James Island, N. side.....	0 13	90 44	6 03	Valparaiso.....	135	+5 38	+5 37	+1.1	+0.1	1.31
COLOMBIA—continued.		North.									
35	Tumaco Road.....	1 51	78 40	5 15	Panama.....	139	+0 35	+0 34	-2.6	-0.2	0.82
36	Buenaventura.....	3 52	77 08	5 08	Panama.....	139	+3 00	+2 59	-2.6	-0.2	0.82
37	Negrillas Rocks.....	3 52	77 24	5 10	Panama.....	139	+1 00	+0 59	-2.9	-0.3	0.79
38	Cabita Bay.....	5 28	77 28	5 10	Panama.....	139	+0 40	+0 39	-2.6	-0.2	0.81
39	Cupica Bay.....	6 35	77 23	5 10	Panama.....	139	+0 30	+0 29	-2.5	-0.3	0.53
PANAMA—continued.											
40	Pinas Bay.....	7 34	78 11	5 13	Panama.....	139	+0 15	+0 14	-2.0	-0.2	0.86
41	Rey Island, Panama Gulf.....	8 17	78 54	5 16	Panama.....	139	0 00	-0 01	-0.4	-0.1	0.98
42	Chepo River, Panama Gulf.....	8 59	79 07	5 16	Panama.....	139	+0 05	+0 04	0.0	0.0	1.00
43	PANAMA (NAOS I.), Panama Gulf.....	8 55	79 32	5 18	Panama.....	139	0 00	0 00	0.0	0.0	1.00
44	Taboga, Panama Gulf.....	8 48	79 33	5 18	Panama.....	139	0 00	-0 01	-0.6	0.0	0.95
45	Chame Bay, Panama Gulf.....	8 38	79 47	5 19	Panama.....	139	+0 30	+0 28	-0.8	-0.2	0.94
46	Cape Mala, Panama Gulf.....	7 30	80 00	5 20	Panama.....	139	+0 10	+0 08	-2.6	-0.4	0.82
47	Bahia Honda.....	7 43	81 30	5 25	Panama.....	139	+0 10	+0 08	-4.4	-0.6	0.69
48	Parida Island.....	8 07	82 20	5 29	Panama.....	139	+0 15	+0 14	-5.0	-0.6	0.66
NORTH AMERICA (West Coast).											
COSTA RICA—continued.											
West coast.											
49	El Rincon Harbor, Gulf of Dulce...	8 44	83 28	5 34	Panama.....	139	-0 14	-0 15	-5.4	-0.6	0.63
50	Uvita Bay.....	9 08	83 46	5 35	Panama.....	139	-0 39	-0 41	-5.8	-0.6	0.60
51	Port Herradura.....	9 39	84 39	5 39	Panama.....	139	-0 24	-0 25	-6.2	-0.8	0.56
52	Port Culebra.....	10 38	85 40	5 43	Panama.....	139	-0 14	-0 15	-6.2	-0.8	0.56
53	Port Elena.....	10 58	85 42	5 43	Panama.....	139	-0 09	-0 11	-5.8	-0.6	0.60

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	9 50	3 37	9 44b	4 14a	2.7	3.5	1.8	3.4	1.6	0.3	.....	1.6	1.8	1.5	11.5
2	9 05	2 52	8 59b	3 24a	3.6	4.7	2.4	4.5	1.8	0.4	.....	1.8	2.4	1.9	11.5
3	9 35	3 22	9 29b	3 58a	3.0	3.9	2.0	3.8	1.7	0.4	.....	1.7	2.0	1.6	11.0
4	9 44	3 31	9 38b	4 06a	3.1	4.0	2.0	3.9	1.7	0.4	.....	1.7	2.0	1.7	11.0
5	8 55	2 42	8 49b	3 14a	3.7	4.8	2.4	4.6	1.9	0.4	.....	1.9	2.4	2.0	10.5
6	9 00	2 47	8 54b	3 18a	3.8	4.9	2.5	4.7	1.9	0.4	.....	1.9	2.4	2.0	10.5
7	8 35	2 22	8 29b	2 53a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	10.0
8	8 35	2 22	8 29b	2 52a	4.2	5.4	2.7	5.1	2.0	0.4	.....	2.0	2.7	2.2	10.0
9	8 32	2 20	8 26b	2 51a	3.9	5.0	2.5	4.8	1.9	0.4	.....	1.9	2.5	2.0	10.0
10	7 49	1 37	7 44b	2 07a	4.3	5.6	2.8	5.2	2.0	0.4	.....	2.0	2.8	2.3	9.5
11	7 55	1 48	7 49b	2 14a	4.1	5.3	2.7	5.0	1.9	0.4	.....	2.0	2.6	2.3	10.0
12	7 39	1 27	7 34b	1 56a	4.8	6.2	3.1	5.8	2.1	0.5	.....	2.1	3.1	2.5	10.0
13	6 47	0 35	6 40b	1 11a	3.0	3.9	2.0	3.8	1.7	0.4	.....	1.7	2.0	1.6	10.5
14	6 16	0 04	6 09b	0 41a	2.9	3.8	1.9	3.7	1.6	0.4	.....	1.7	1.9	1.6	10.0
15	5 47	12 00	5 40b	0 12a	2.7	3.5	1.8	3.4	1.6	0.3	.....	1.6	1.8	1.5	10.0
16	5 29	11 42	5 21b	12 23b	2.3	3.0	1.5	3.0	1.5	0.3	.....	1.5	1.5	1.3	9.5
17	5 08	11 21	4 59b	12 09b	1.6	2.1	1.1	2.2	1.2	0.3	.....	1.2	1.0	0.9	9.5
18	4 50	11 03	4 41b	11 51b	1.6	2.0	1.0	2.2	1.2	0.3	.....	1.2	1.0	0.9	9.0
19	4 19	10 32	4 10b	11 20b	1.6	2.1	1.1	2.2	1.2	0.3	.....	1.2	1.0	0.9	9.0
20	4 04	10 17	3 56b	11 00b	1.9	2.5	1.3	2.3	1.3	0.3	.....	1.3	1.2	1.1	8.5
21	3 20	9 38	3 13b	10 10b	2.7	3.5	1.8	3.4	1.6	0.3	.....	1.6	1.8	1.5	8.5
22	4 00	10 13	3 56b	10 35b	7.8	10.0	5.1	9.1	2.7	0.6	.....	2.7	5.0	4.1	7.5
23	7 00	1 00	6 56b	1 21b	8.5	11.0	5.6	9.8	2.8	0.6	.....	2.8	5.5	4.5	7.5
24	3 00	9 13	2 55b	9 38b	6.1	7.9	4.0	7.2	2.4	0.5	.....	2.4	4.0	3.2	7.5
25	3 10	9 23	3 05b	9 48b	5.8	7.5	3.8	6.9	2.3	0.5	.....	2.3	3.8	3.0	7.0
26	3 15	9 28	3 11b	9 50b	7.7	9.9	5.0	9.0	2.7	0.6	.....	2.7	5.0	4.0	7.0
27	3 20	9 33	3 16b	9 54b	8.4	10.8	5.5	9.7	2.8	0.6	.....	2.8	5.4	4.4	7.0
28	3 25	9 38	3 21b	9 58b	9.9	12.8	6.5	11.3	3.0	0.7	.....	3.1	6.4	5.2	7.0
29	3 20	9 33	3 16b	9 53b	9.9	12.7	6.5	11.3	3.0	0.7	.....	3.1	6.4	5.1	6.5
30	2 10	8 23	2 05b	8 52b	4.7	6.0	3.0	5.7	2.1	0.5	.....	2.1	3.0	2.4	8.0
31	2 00	8 13	1 56b	8 41b	4.8	6.2	3.1	5.8	2.1	0.5	.....	2.1	3.1	2.5	8.0
32	2 20	8 33	2 15b	9 01b	5.0	6.5	3.3	6.1	2.2	0.5	.....	2.2	3.2	2.6	8.0
33	2 00	8 13	1 55b	8 41b	4.8	6.2	3.1	5.8	2.1	0.5	.....	2.1	3.1	2.5	8.0
34	2 45	8 58	2 39b	9 28b	4.0	5.2	2.6	4.9	1.9	0.4	.....	1.9	2.6	2.1	8.0
35	8 35	9 48	3 29a	9 51a	10.3	13.2	7.1	10.4	0.5	0.9	.....	1.1	6.6	5.3	6.5
36	6 00	12 13	5 54a	12 16a	10.3	13.2	7.1	10.4	0.5	0.9	.....	1.1	6.6	5.3	6.0
37	4 00	10 13	3 55a	10 16a	10.0	12.8	6.9	10.1	0.5	0.9	.....	1.0	6.4	5.2	6.0
38	3 40	9 53	3 34a	9 56a	10.2	13.1	7.0	10.3	0.5	0.9	.....	1.1	6.6	5.3	5.5
39	3 30	9 43	3 24a	9 46a	10.4	13.3	7.2	10.5	0.5	0.9	.....	1.1	6.6	5.4	5.0
40	3 15	9 28	3 10a	9 31a	10.8	13.8	7.5	10.9	0.5	1.0	.....	1.1	6.9	5.6	5.0
41	3 00	9 13	2 55a	9 16a	12.3	15.7	8.5	12.4	0.6	1.0	.....	1.2	7.8	6.4	5.0
42	3 05	9 18	3 00a	9 21a	12.6	16.0	8.7	12.7	0.6	1.0	.....	1.2	8.0	6.4	5.0
43	2 59	9 13	2 54a	9 16a	12.6	15.9	8.7	12.9	0.6	1.1	23 22	1.2	8.0	6.6	5.0
44	3 00	9 13	2 55a	9 16a	12.0	15.4	8.3	12.1	0.6	1.0	.....	1.1	7.7	6.2	5.0
45	8 30	9 42	3 25a	9 46a	11.9	15.0	8.1	12.0	0.5	1.0	.....	1.1	7.5	6.0	5.0
46	3 10	9 22	3 04a	9 27a	10.3	13.0	7.0	10.4	0.5	0.9	.....	1.1	6.5	5.3	5.5
47	3 10	9 22	3 04a	9 27a	8.7	11.0	5.9	8.8	0.5	0.8	.....	1.0	5.5	4.4	6.0
48	3 15	9 28	3 09a	9 33a	8.3	10.5	5.7	8.4	0.5	0.8	.....	1.0	5.2	4.2	6.0
49	2 45	8 58	2 39a	9 03a	7.9	10.0	5.4	8.0	0.4	0.8	.....	0.9	5.0	4.0	6.0
50	2 20	8 32	2 14a	8 37a	7.5	9.5	5.1	7.6	0.4	0.8	.....	0.9	4.8	3.8	6.0
51	2 35	8 48	2 28a	8 53a	7.1	9.0	4.9	7.2	0.4	0.7	.....	0.9	4.5	3.6	6.0
52	2 45	8 58	2 38a	9 03a	7.1	9.0	4.9	7.2	0.4	0.7	.....	0.9	4.5	3.6	6.0
53	2 50	9 02	2 44a	9 07a	7.5	9.5	5.1	7.6	0.4	0.8	.....	0.9	4.8	3.8	6.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (West Coast)—Continued.											
NICARAGUA—continued.											
West coast.		North.	West.				Local time.		Mean Low Water Springs.		
		° /	° /	A. M.			h. m.	h. m.	feet.	feet.	
1	Port San Juan del Sur.....	11 15	85 53	5 44	Panama .....	139	+0 01	-0 01	-5.4	-0.6	0.63
2	Corinto Harbor.....	12 28	87 12	5 49	Panama .....	139	-0 04	-0 05	-5.0	-0.6	0.66
HONDURAS—continued.											
West coast.											
3	Amapala .....	13 20	87 34	5 50	Panama .....	139	+0 01	-0 01	-4.4	-0.6	0.65
SALVADOR.											
4	Port la Union .....	13 20	87 51	5 51	Panama .....	139	+0 16	+0 15	-5.0	-0.6	0.66
5	Libertad .....	13 29	89 19	5 57	Panama .....	139	+0 06	+0 05	-5.4	-0.6	0.62
6	Acajutla Bay .....	13 34	89 50	5 59	Panama .....	139	-0 04	-0 05	-5.8	-0.6	0.64
GUATEMALA—continued.											
West coast.											
7	San Jose .....	13 56	90 49	6 03	Panama .....	139	-0 08	-0 10	-6.2	-0.8	0.56
8	Champerico .....	14 17	91 55	6 08	Panama .....	139	-0 08	-0 10	-6.8	-0.8	0.53
9	Soconusco Bar.....	15 06	92 54	6 12	Panama .....	139	-0 08	-0 10	-7.2	-0.8	0.50
MEXICO—continued.											
West coast.									Mean Lower Low Water.		
10	La Puerta .....	15 57	93 48	6 15	Panama .....	139	-0 08	-0 10	-8.2	-1.4	0.47
11	Salina Cruz .....	16 10	95 12	6 21	Panama .....	139	-0 08	-0 10	-8.6	-1.4	0.44
12	Port Sacrificios .....	15 41	96 14	6 25	Panama .....	139	-0 08	-0 10	-9.4	-1.4	0.37
13	Maldonado .....	16 33	98 45	6 35	Panama .....	139	-0 13	-0 14	-10.9	-1.5	0.25
14	Acapulco .....	16 52	99 55	6 40	Panama .....	139	-0 18	-0 20	-12.6	-1.6	0.13
15	Port Sihuatanajo .....	17 36	101 32	6 46	San Diego .....	143	-0 39	-0 39	-2.8	-0.6	0.45
16	Manzanillo .....	19 03	104 21	6 57	San Diego .....	143	-0 22	-0 22	-2.5	-0.5	0.47
17	Chamela or Perula Bay .....	19 32	105 07	7 00	San Diego .....	143	-0 22	-0 24	-2.3	-0.5	0.52
18	San Blas .....	21 29	105 17	7 01	San Diego .....	143	-0 21	-0 25	-1.8	-0.4	0.60
19	Mazatlan .....	23 11	106 27	7 06	San Diego .....	143	-0 14	-0 19	-1.6	-0.4	0.69
Gulf of California.											
20	Altata, Culiacan River .....	24 38	107 58	7 12	San Diego .....	143	+0 45	+0 49	0.0	-0.2	1.05
21	San Lorenzo Channel .....	24 22	110 20	7 21	San Diego .....	143	+0 13	+0 18	-0.5	-0.3	0.94
22	La Paz Harbor .....	24 20	110 22	7 21	San Diego .....	143	+0 18	+0 24	-0.4	-0.2	0.97
23	San Lucas Bay .....	27 14	112 13	7 29	San Diego .....	143	+1 53	+2 00	-0.9	-0.3	0.84
24	Guaymas Harbor .....	27 55	110 51	7 23	San Diego .....	143	+2 08	+2 16	-0.7	-0.3	0.89
25	Santa Teresa Bay .....	28 25	112 52	7 31	San Diego .....	143	+2 28	+2 37	+4.0	0.0	2.02
26	Puerto Refugio .....	29 33	113 35	7 34	San Diego .....	143	+3 28	+3 38	+4.4	0.0	2.12
27	Topoca Bay .....	30 15	112 50	7 31	San Diego .....	143	+4 23	+4 34	+8.4	+0.4	3.09
28	Colorado River Entrance .....	31 45	114 48	7 39	San Diego .....	143	+5 19	+5 31	+18.6	+0.8	5.65
Lower California, outer coast.											
29	San Jose del Cabo .....	23 03	109 42	7 19	San Diego .....	143	-0 46	-0 50	-1.0	-0.4	0.81
30	Pequeña Bay, Santa Margarite I. ....	24 24	111 49	7 27	San Diego .....	143	-1 11	-1 17	+0.2	0.0	1.05
31	Magdalena Bay .....	24 34	112 09	7 29	San Diego .....	143	-1 04	-1 07	-0.3	-0.3	1.02
32	San Juanico Bay .....	26 15	112 28	7 30	Kodiak .....	163	-4 26	-4 21	-4.0	-1.0	0.57
33	Abrejos Pt., Ballenas Bay .....	26 43	113 34	7 34	Kodiak .....	163	-3 55	-3 50	-3.2	-1.0	0.68
34	San Bartolomé Bay .....	27 40	114 51	7 39	Kodiak .....	163	-3 55	-4 01	-2.2	-1.0	0.84
35	Cerro Island .....	28 12	115 14	7 41	San Diego .....	143	-0 16	-0 27	+2.4	+0.2	1.54
36	Playa Maria Bay .....	28 55	114 48	7 39	San Diego .....	143	-0 06	-0 16	+2.3	+0.2	1.49
37	Rosario Bay .....	29 54	115 43	7 43	San Diego .....	143	-0 02	-0 13	+1.1	+0.1	1.26
38	San Quentin Bay .....	30 25	115 54	7 44	San Diego .....	143	+0 02	-0 09	-0.1	0.0	0.97
39	Colnett Bay .....	30 57	116 15	7 45	San Diego .....	143	+0 06	-0 04	+0.7	+0.1	1.15
40	Ensenada, Todos Santos Bay .....	31 51	116 36	7 46	San Diego .....	143	+0 09	-0 03	0.0	0.0	0.99
CALIFORNIA.											
							Time meridian 120° W.				
41	San Diego Bar .....	32 40	117 14	7 49	San Diego .....	143	-0 08	-0 13	+0.1	0.0	1.02
42	SAN DIEGO, La Playa .....	32 42	117 14	7 49	San Diego .....	143	0 00	0 00	0.0	0.0	1.00
43	San Juan Capistrano .....	33 27	117 43	7 51	San Diego .....	143	+0 06	-0 08	-0.1	0.0	0.97
San Pedro Channel.											
44	Newport Landing .....	33 38	117 54	7 52	San Diego .....	143	+0 16	+0 07	-0.4	-0.1	0.92
45	Anaheim Landing .....	33 43	118 05	7 52	San Diego .....	143	+0 14	+0 02	+0.1	0.0	1.02
46	San Pedro .....	33 43	118 16	7 53	San Diego .....	143	+0 08	-0 08	+0.3	0.0	1.07
47	Santa Monica .....	34 01	118 30	7 54	San Diego .....	143	+0 10	+0 02	0.0	0.0	1.00

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	3 00	9 12	2 54a	9 17a	7.9	10.0	5.4	8.0	0.4	0.8	.....	0.9	5.0	4.0	6.0
2	2 55	9 08	2 49a	9 13a	8.3	10.5	5.7	8.4	0.5	0.8	.....	1.0	5.2	4.2	6.0
3	3 00	9 12	2 54a	9 17a	8.7	11.0	5.9	8.8	0.5	0.8	.....	1.0	5.5	4.4	6.0
4	3 15	9 28	3 09a	9 33a	8.3	10.5	5.7	8.4	0.5	0.8	.....	1.0	5.2	4.2	6.0
5	3 05	9 18	2 59a	9 23a	7.9	10.0	5.4	8.0	0.4	0.8	.....	0.9	5.0	4.0	6.0
6	2 55	9 08	2 49a	9 13a	7.5	9.5	5.1	7.6	0.4	0.8	.....	0.9	4.8	3.8	6.0
7	2 50	9 02	2 43a	9 07a	7.1	9.0	4.9	7.2	0.4	0.7	.....	0.9	4.5	3.6	6.0
8	2 50	9 02	2 43a	9 07a	6.7	8.5	4.6	6.8	0.4	0.7	.....	0.9	4.2	3.4	6.5
9	2 50	9 02	2 43a	9 07a	6.3	8.0	4.3	6.4	0.4	0.7	.....	0.8	4.0	3.2	6.5
10	2 50	9 02	2 43a	9 08a	5.9	7.5	4.0	6.0	0.4	0.7	.....	0.8	3.2	3.0	6.5
11	2 50	9 02	2 42a	9 08a	5.5	7.0	3.8	5.6	0.4	0.7	.....	0.8	3.0	2.8	6.5
12	2 50	9 02	2 42a	9 08a	4.7	6.0	3.2	4.8	0.3	0.6	.....	0.7	2.6	2.4	6.5
13	2 45	8 58	2 35a	9 06a	3.2	4.0	2.2	3.8	0.3	0.5	.....	0.6	1.8	1.7	7.0
14	2 40	8 52	2 27a	9 03a	1.6	2.0	1.1	1.6	0.2	0.4	.....	0.4	0.9	0.9	7.0
15	8 50	2 38	9 10a	2 39b	1.7	2.0	0.9	2.4	0.5	1.3	.....	1.5	1.2	1.3	7.5
16	9 07	2 54	9 50a	2 54b	1.8	1.9	1.3	2.8	0.8	1.5	.....	1.7	1.4	1.6	7.5
17	9 07	2 53	9 25a	3 00b	2.0	2.5	1.1	3.2	0.7	1.6	.....	1.8	1.5	1.7	8.0
18	9 08	2 52	9 00a	3 10b	2.3	3.2	1.0	3.3	0.9	1.7	.....	2.0	1.8	1.8	8.0
19	9 08	2 51	8 18a	3 20b	2.6	3.8	0.9	3.5	1.1	1.9	5 02	2.2	1.9	1.9	9.0
20	10 07	3 59	9 26a	4 22b	4.0	5.8	1.4	5.1	1.4	2.3	.....	2.7	2.8	2.8	9.5
21	9 35	3 28	8 51a	3 52b	3.6	5.3	1.2	4.7	1.3	2.2	.....	2.6	2.5	2.5	9.5
22	9 40	3 34	8 57a	3 58b	3.7	5.4	1.3	4.8	1.3	2.2	.....	2.6	2.6	2.6	9.5
23	11 15	5 10	10 27a	5 37b	3.2	4.7	1.1	4.2	1.2	2.1	.....	2.5	2.3	2.3	11.0
24	11 30	5 26	10 45a	5 51b	3.4	5.0	1.2	4.4	1.3	2.1	.....	2.5	2.4	2.4	11.0
25	11 50	5 47	11 20a	6 04b	7.7	11.2	2.6	9.3	1.9	3.2	.....	3.8	4.9	4.9	11.5
26	0 25	6 48	-0 04b	7 04b	8.1	11.8	2.8	9.7	2.0	3.3	.....	3.9	5.1	5.1	11.5
27	1 20	7 44	0 56b	7 58b	11.8	17.2	4.0	13.8	2.4	4.0	.....	4.7	7.3	7.2	12.0
28	2 15	8 40	1 57b	8 50b	21.6	31.5	7.3	24.2	3.2	5.3	.....	6.4	12.6	12.5	12.5
29	8 36	2 20	7 56a	2 57b	3.1	4.5	1.2	4.1	1.6	1.8	.....	2.5	2.2	2.1	9.0
30	8 17	1 59	7 31a	2 29b	4.0	5.3	2.4	6.1	1.9	2.9	.....	3.6	3.0	3.2	10.0
31	8 25	2 12	7 49a	2 45b	3.8	5.5	1.5	5.0	1.8	2.0	5 04	2.8	2.6	2.5	10.0
32	8 29	2 17	8 10a	2 33b	3.9	5.7	1.6	4.2	0.9	1.1	5 04	1.4	2.8	2.1	10.5
33	9 00	2 48	8 48a	3 01b	4.7	6.7	2.3	4.9	0.9	0.8	6 01	1.2	2.7	2.4	10.5
34	9 00	2 37	8 49a	2 48b	5.8	8.2	2.8	6.0	1.0	0.9	.....	1.3	3.2	4.0	11.0
35	9 05	2 42	8 28a	3 06b	5.9	7.3	3.5	8.4	2.3	3.6	.....	4.3	4.2	4.5	11.5
36	9 15	2 53	8 37a	3 18b	5.7	7.6	3.4	8.1	2.3	3.5	.....	4.3	4.1	4.3	11.5
37	9 19	2 56	8 38a	3 23b	4.8	6.4	2.9	7.0	2.1	3.2	.....	3.9	3.5	3.7	12.0
38	9 23	3 00	8 40a	3 30b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	12.0
39	9 27	3 05	8 44a	3 33b	4.4	5.8	2.6	6.5	2.0	3.1	.....	3.7	3.3	3.5	12.5
40	9 28	3 06	8 43a	3 40b	3.8	5.0	2.2	5.7	1.8	2.8	.....	3.4	2.9	3.1	12.5
41	9 29	3 07	8 46a	3 43b	3.9	5.2	2.3	5.9	1.9	2.9	.....	3.5	3.0	3.2	13.5
42	9 32	3 20	8 48a	3 55b	3.8	5.1	2.3	5.9	2.2	2.7	5 57	3.6	2.9	3.1	13.5
43	9 42	3 21	8 55a	3 51b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.9	3.0	14.0
44	9 45	3 24	8 57a	3 55b	3.5	4.7	2.1	5.4	1.8	2.7	.....	3.3	2.7	2.9	14.0
45	9 43	3 19	8 57a	3 49b	3.9	5.2	2.3	5.9	1.9	2.9	.....	3.5	3.0	3.2	14.5
46	9 36	3 13	8 51a	3 42b	4.1	5.5	2.5	6.2	1.9	3.0	.....	3.6	3.1	3.3	14.5
47	9 37	3 17	8 53a	3 45b	3.8	5.1	2.3	5.9	1.9	2.9	.....	3.5	2.9	3.1	14.5



TABLE 3.—TIDAL DIFFERENCES.

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.						
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		Ratio of ranges.	
			Arc.	Time.			HW.	LW.	HW.	LW.		
NORTH AMERICA (West Coast)—Continued.												
CALIFORNIA—continued.												
Santa Barbara Channel.		North.	West.				Time meridian, 120° W.		Mean Lower Low Water.			
		o ' "	o ' "	h. m.			h. m.	h. m.	feet.	feet.		
1	Hueneme Light .....	34 16	119 13	7 57	San Diego .....	143	+0 08	+0 03	-0.2	-0.1	0.97	
2	San Buenaventura .....	34 16	119 17	7 57	San Diego .....	143	+0 29	+0 09	-0.2	-0.1	0.97	
3	Santa Barbara Light .....	34 24	119 43	7 59	San Diego .....	143	+0 18	+0 05	-0.2	0.0	0.94	
4	Gaviota .....	34 28	120 14	8 01	San Diego .....	143	+0 14	+0 08	-0.2	0.0	0.94	
Santa Barbara Islands.												
5	Santa Catalina Harbor, Catalina I. ....	33 26	118 29	7 54	San Diego .....	143	+1 03	+0 55	0.0	0.0	1.00	
6	Corral Harbor, San Nicholas I. ....	33 17	119 31	7 58	San Diego .....	143	0 03	-0 07	-0.2	-0.1	0.97	
7	Prisoner Harbor, Santa Cruz I. ....	34 01	119 41	7 59	San Diego .....	143	+0 05	-0 04	-0.2	-0.1	0.97	
8	Cuyler Harbor, San Miguel I. ....	34 03	120 21	8 01	San Diego .....	143	+0 03	-0 06	-0.2	-0.1	0.97	
Outer coast.												
9	Lompoc Landing .....	34 44	120 37	8 02	San Diego .....	143	+0 36	+0 38	-0.2	0.0	0.94	
10	Point Sal .....	34 54	120 40	8 03	San Diego .....	143	+0 44	+0 47	-0.2	0.0	0.94	
11	San Luis Obispo .....	35 11	120 44	8 03	San Diego .....	143	+0 59	+0 59	-0.2	-0.1	0.97	
12	Morro, Morro Bay .....	35 21	120 50	8 03	San Diego .....	143	+1 13	+1 19	0.2	-0.1	0.97	
13	Cayucos, Estero Bay .....	35 27	120 55	8 04	San Diego .....	143	+1 16	+1 22	0.0	0.0	1.00	
14	San Simeon .....	35 39	121 11	8 05	San Diego .....	143	+1 23	+1 31	0.0	0.0	1.00	
15	Monterey Harbor Light .....	36 37	121 52	8 07	San Francisco Ent .....	147	-0 59	-0 42	+0.4	-0.1	1.08	
16	Santa Cruz Harbor Light .....	36 57	122 02	8 08	San Francisco Ent .....	147	-0 47	-0 38	+0.8	+0.2	1.17	
17	Half Moon Bay .....	37 30	122 27	8 10	San Francisco Ent .....	147	-0 51	-0 39	+0.3	0.0	1.09	
18	Southeast Farallon Light .....	37 42	123 00	8 12	San Francisco Ent .....	147	-0 57	-0 36	0.0	0.0	1.00	
19	San Francisco Bar .....	37 46	122 38	8 11	San Francisco Ent .....	147	-0 01	-0 07	-0.1	0.0	0.95	
San Francisco Bay, S. portion.												
20	SAN FRANCISCO ENTR., Fort Point ..	37 49	122 29	8 10	San Francisco Ent .....	147	0 00	0 00	0.0	0.0	1.00	
21	Presidio .....	37 43	122 27	8 10	San Francisco Ent .....	147	+0 04	+0 04	+0.2	+0.1	1.06	
22	Alcatraz Light .....	37 49	122 25	8 10	San Francisco Ent .....	147	+0 11	+0 13	-0.1	0.0	0.98	
23	San Francisco, North Beach .....	37 48	122 24	8 10	San Francisco Ent .....	147	+0 26	+0 29	0.0	0.0	1.00	
24	San Francisco, Mission street .....	37 48	122 24	8 10	San Francisco Ent .....	147	+0 28	+0 31	+0.6	+0.1	1.14	
25	Goat Island (Yerba Buena Light) ..	37 48	122 22	8 09	San Francisco Ent .....	147	+0 28	+0 33	+0.4	+0.1	1.08	
26	Oakland .....	37 48	122 18	8 09	San Francisco Ent .....	147	+0 31	+0 38	+0.9	0.0	1.22	
27	Alameda .....	37 46	122 18	8 09	San Francisco Ent .....	147	+0 40	+0 56	+0.8	+0.2	1.17	
28	Point Avisadero .....	37 44	122 21	8 09	San Francisco Ent .....	147	+0 32	+0 40	+1.1	+0.2	1.25	
29	Roberts Landing .....	37 41	122 10	8 09	San Francisco Ent .....	147	+0 50	+1 06	-0.4	0.0	0.89	
30	Mt. Eden, Mt. Eden Slough .....	37 37	122 08	8 09	San Francisco Ent .....	147	+1 18	+1 44	+0.6	+0.2	1.11	
31	Union City, Union City Creek .....	37 36	122 06	8 08	San Francisco Ent .....	147	+1 39	+2 07	-1.3	-0.2	0.68	
32	San Mateo Point .....	37 35	122 19	8 09	San Francisco Ent .....	147	+0 45	+0 56	+1.7	+0.2	1.38	
33	Guano Island .....	37 34	122 15	8 09	San Francisco Ent .....	147	+0 48	+1 10	+2.4	+0.4	1.54	
34	Coyote Hill Creek Entrance .....	37 34	122 08	8 09	San Francisco Ent .....	147	+1 00	+1 16	+2.4	+0.4	1.54	
35	Johnsons Land'g, Coyote Hill Creek ..	37 34	122 05	8 08	San Francisco Ent .....	147	+1 24	+1 45	+2.9	+0.4	1.68	
36	Redwood City Creek Entrance .....	37 31	122 12	8 09	San Francisco Ent .....	147	+0 56	+1 11	+2.8	+0.4	1.65	
37	Mayhews Landing, Newark Slough ..	37 32	122 04	8 08	San Francisco Ent .....	147	+1 14	+1 40	+2.6	+0.3	1.63	
38	Ravenswood .....	37 28	122 06	8 08	San Francisco Ent .....	147	+0 57	+1 22	+2.6	+0.3	1.63	
San Francisco Bay, N. portion.												
39	Sausalito .....	37 51	122 29	8 10	San Francisco Ent .....	147	+0 05	+0 19	-0.3	-0.2	0.95	
40	Angel Island .....	37 51	122 26	8 10	San Francisco Ent .....	147	+0 16	+0 32	-0.4	-0.1	0.92	
41	West Berkeley .....	37 52	122 18	8 09	San Francisco Ent .....	147	+0 45	+0 51	+0.7	0.0	1.17	
42	Point San Quentin .....	37 56	122 29	8 10	San Francisco Ent .....	147	+0 58	+1 03	+0.5	0.0	1.11	
43	The Brothers Light .....	37 58	122 26	8 10	San Francisco Ent .....	147	+1 01	+1 06	+0.6	+0.1	1.14	
San Pablo Bay.												
44	McNears Landing .....	37 59	122 27	8 10	San Francisco Ent .....	147	+1 02	+1 04	+0.4	+0.1	1.06	
45	Point Wilson .....	38 01	122 19	8 09	San Francisco Ent .....	147	+1 40	+1 59	+1.2	+0.2	1.27	
46	Petaluma Point .....	38 06	122 29	8 10	San Francisco Ent .....	147	+1 06	+1 32	+0.9	0.0	1.22	
47	Sonoma Creek Entrance .....	38 09	122 24	8 10	San Francisco Ent .....	147	+1 22	+1 48	+0.9	0.0	1.22	
Karquines Strait.												
48	Mare Island Light .....	38 04	122 15	8 09	San Francisco Ent .....	147	+1 50	+2 11	+1.2	+0.2	1.27	
49	Wheatport .....	38 03	122 13	8 09	San Francisco Ent .....	147	+1 55	+2 19	+1.2	+0.2	1.27	
50	Benicia .....	38 03	122 08	8 09	San Francisco Ent .....	147	+2 20	+2 44	+1.2	+0.2	1.27	
Suisun Bay.												
51	Seal Bluff .....	38 03	122 08	8 08	San Francisco Ent .....	147	+2 27	+3 06	+1.4	+0.2	1.33	
52	Suisun Creek Entrance .....	38 07	122 04	8 08	San Francisco Ent .....	147	+2 39	+3 17	+1.2	+0.2	1.27	
53	Antioch, San Joaquin River .....	38 01	121 49	8 07	San Francisco Ent .....	147	+3 54	+4 53	+0.3	0.0	1.06	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	9 32	8 15	8 45a	8 45b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	15.0
2	9 53	8 21	9 06a	8 51b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	15.0
3	9 37	8 15	8 49a	8 46b	3.6	4.8	2.2	5.5	1.8	2.8	.....	3.4	2.8	3.0	15.0
4	9 34	8 16	8 46a	8 47b	3.6	4.8	2.2	5.5	1.8	2.8	.....	3.4	2.8	3.0	15.0
5	9 28	8 08	8 41a	8 38b	3.8	5.1	2.3	5.9	1.9	2.9	.....	3.5	2.9	3.1	14.0
6	9 20	8 04	8 33a	8 34b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	14.5
7	9 29	8 06	8 42a	8 36b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	15.0
8	9 23	8 02	8 36a	8 32b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	15.0
9	9 55	8 45	9 07a	4 16b	3.6	4.8	2.2	5.5	1.8	2.8	.....	3.4	2.8	3.0	15.0
10	10 02	8 53	9 14a	4 24b	3.6	4.8	2.2	5.5	1.8	2.8	.....	3.4	2.8	3.0	15.5
11	10 17	4 05	9 30a	4 35b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	15.5
12	10 31	4 25	9 44a	4 55b	3.7	4.9	2.2	5.6	1.8	2.8	.....	3.4	2.8	3.0	15.5
13	10 33	4 27	9 46a	4 57b	3.8	5.1	2.3	5.8	1.9	2.9	.....	3.5	2.9	3.1	15.5
14	10 38	4 34	9 52a	5 04b	4.0	5.3	2.4	6.1	1.9	2.9	.....	3.6	3.0	3.2	16.0
15	10 43	4 24	9 43a	4 49b	4.0	4.8	3.1	6.8	1.5	4.0	.....	4.3	3.4	3.9	16.5
16	10 54	4 27	9 57a	4 45b	4.3	5.2	3.3	7.1	1.5	4.1	.....	4.4	3.6	4.1	16.5
17	10 48	4 24	9 48a	4 43b	3.9	4.7	3.0	6.6	1.4	3.9	.....	4.2	3.3	3.8	17.0
18	10 40	4 25	9 38a	4 45b	3.7	4.5	2.9	6.3	1.4	3.8	.....	4.1	3.2	3.6	17.0
19	11 37	4 55	10 35a	5 16b	3.5	4.2	2.7	6.1	1.4	3.7	.....	4.0	3.1	3.5	17.0
20	11 39	5 08	10 34a	5 27b	3.7	4.5	2.9	6.2	1.3	3.7	6 40	4.0	3.2	3.6	17.0
21	11 43	5 07	10 40a	5 27b	3.8	4.6	2.9	6.5	1.4	3.9	.....	4.2	3.2	3.7	17.0
22	11 50	5 16	10 46a	5 37b	3.6	4.4	2.8	6.2	1.4	3.8	.....	4.1	3.1	3.5	17.0
23	12 05	5 32	11 05a	5 51b	3.7	4.5	2.8	6.3	1.4	3.8	.....	4.1	3.2	3.6	17.0
24	12 07	5 34	11 08a	5 53b	4.2	5.1	3.2	7.1	1.5	4.0	.....	4.4	3.5	4.1	17.0
25	12 08	5 37	11 08a	5 56b	4.0	4.8	3.1	6.8	1.5	4.0	.....	4.3	3.4	3.9	17.0
26	12 11	5 42	11 19a	6 02b	4.5	5.4	3.6	7.3	1.6	4.0	.....	4.4	3.6	4.2	17.0
27	12 20	6 00	11 23a	6 18b	4.3	5.2	3.3	7.1	1.5	4.1	.....	4.4	3.6	4.1	17.0
28	12 12	5 44	11 16a	6 02b	4.6	5.6	3.5	7.5	1.6	4.2	.....	4.6	3.8	4.4	17.0
29	0 05	6 10	— 01b	6 31b	3.3	4.0	2.5	5.8	1.3	3.6	.....	3.9	2.9	3.2	17.0
30	0 33	6 48	— 02b	7 07b	4.1	5.0	3.2	6.8	1.5	4.0	.....	4.3	3.5	4.0	17.0
31	0 55	7 12	— 02b	7 36b	2.5	3.0	1.9	4.6	1.2	3.1	.....	3.4	2.4	2.7	17.0
32	0 00	6 00	— 05b	6 17b	5.1	6.2	3.9	8.2	1.6	4.5	.....	4.8	4.1	4.8	17.0
33	0 03	6 14	— 04b	6 31b	5.7	6.9	4.4	8.9	1.8	4.7	.....	5.1	4.5	5.2	17.0
34	0 15	6 20	— 03b	6 37b	5.7	6.9	4.4	8.9	1.8	4.7	.....	5.1	4.5	5.2	17.0
35	0 40	6 50	— 08b	7 06b	6.2	7.5	4.8	9.6	1.8	4.9	.....	5.3	4.8	5.5	17.0
36	0 11	6 15	— 03b	6 31b	6.1	7.4	4.7	9.4	1.8	4.9	.....	5.3	4.6	5.4	17.0
37	0 30	6 45	— 01b	7 02b	6.0	7.2	4.6	9.3	1.8	4.8	.....	5.2	4.6	5.4	17.0
38	0 13	6 27	— 03b	6 44b	6.0	7.2	4.6	9.3	1.8	4.8	.....	5.2	4.6	5.4	17.0
39	11 44	5 22	10 45a	5 45b	3.5	4.2	2.7	6.0	1.5	3.5	6 59	3.8	2.9	3.4	17.0
40	11 55	5 35	10 56a	5 57b	3.4	4.1	2.7	5.9	1.5	3.5	.....	3.8	2.9	3.3	17.0
41	0 00	5 55	— 05b	6 15b	4.3	5.2	3.4	7.1	1.7	3.9	.....	4.3	3.5	4.0	17.0
42	0 12	6 06	— 04b	6 26b	4.1	4.9	3.2	6.8	1.6	3.8	.....	4.2	3.4	3.8	17.0
43	0 15	6 09	— 03b	6 29b	4.2	5.0	3.3	6.9	1.6	3.9	.....	4.2	3.5	3.9	17.0
44	0 16	6 07	— 03b	6 35b	4.0	4.8	3.1	6.8	1.5	4.0	.....	4.3	3.4	3.9	17.5
45	0 55	7 03	— 04b	7 22b	4.7	5.6	3.7	7.6	1.7	4.1	.....	4.5	3.8	4.3	17.5
46	0 20	6 35	— 02b	6 59b	4.5	5.4	3.5	7.4	1.7	4.0	.....	4.4	3.6	4.2	17.5
47	0 36	6 51	— 01b	7 11b	4.5	5.4	3.5	7.4	1.7	4.0	.....	4.4	3.6	4.2	17.5
48	1 05	7 15	0 10b	7 29b	4.7	5.6	3.7	7.6	1.7	4.1	.....	4.5	3.8	4.3	17.5
49	1 10	7 23	0 19b	7 42b	4.7	5.6	3.7	7.6	1.7	4.1	.....	4.5	3.8	4.3	17.5
50	1 35	7 48	0 43b	8 08b	4.7	5.6	3.7	7.6	1.7	4.1	.....	4.5	3.8	4.3	17.5
51	1 43	8 10	0 53b	8 29b	4.9	5.9	3.8	7.9	1.8	4.2	.....	4.6	3.9	4.5	17.5
52	1 55	8 22	1 04b	8 41b	4.7	5.6	3.7	7.6	1.7	4.1	.....	4.5	3.8	4.3	17.5
53	3 11	9 59	2 15b	10 20b	3.9	4.7	3.0	6.6	1.6	3.7	.....	4.1	3.3	3.7	17.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
NORTH AMERICA (WEST COAST)—Continued.												
CALIFORNIA—continued.												
Sacramento River.		North.	West.				Time meridian, 120° W.		Mean Lower Low Water.			
		o.	o.	h. m.			h. m.	h. m.	feet.	feet.		
1	Collinsville.....	38 04	121 51	8 07	San Francisco Ent	147	+3 21	+ 4 15	+0.3	0.0	1.06	
2	Sacramento.....	38 33	121 30	8 06	San Francisco Ent	147	+8 03	+10 24	-2.6	-0.4	0.41	
Outer coast.												
3	Drakes Bay.....	38 01	122 53	8 12	San Francisco Ent	147	-0 04	+ 0 16	+0.8	+0.2	1.17	
4	Point Reyes Light.....	38 00	123 01	8 12	San Francisco Ent	147	-0 14	+ 0 07	+0.6	+0.1	1.14	
5	Tomas Bay.....	38 14	122 58	8 12	San Francisco Ent	147	+0 23	+ 0 49	0.0	0.0	1.00	
6	Bodega Ba.....	38 18	123 00	8 12	San Francisco Ent	147	-0 18	+ 0 02	+0.2	+0.1	1.03	
7	Fort Ross.....	38 31	123 15	8 13	San Francisco Ent	147	-0 31	- 0 11	0.0	0.0	1.00	
8	Point Arena Light.....	38 57	123 44	8 15	San Francisco Ent	147	-0 58	- 0 37	-0.3	0.0	0.92	
9	Navarro River Entrance.....	39 12	123 45	8 15	San Francisco Ent	147	-0 55	- 0 33	-0.1	0.0	0.98	
10	Little River Harbor.....	39 16	123 47	8 15	San Francisco Ent	147	-1 04	- 0 41	+0.4	+0.1	1.06	
11	Mendocino Bay.....	39 18	123 47	8 15	San Francisco Ent	147	-0 59	- 0 34	+0.1	0.0	1.03	
12	Fort Bragg Landing.....	39 26	123 49	8 15	San Francisco Ent	147	-0 34	- 0 08	+0.3	0.0	1.06	
13	Westport.....	39 38	123 47	8 15	San Francisco Ent	147	-0 34	- 0 14	+0.4	+0.1	1.06	
14	Shelter Cove.....	40 02	124 03	8 16	San Francisco Ent	147	-0 43	- 0 22	+0.4	+0.1	1.06	
15	Cape Mendocino Bay.....	40 26	124 25	8 18	San Francisco Ent	147	-0 31	- 0 05	+0.3	0.0	1.06	
16	Eel River Bar.....	40 38	124 19	8 17	Astoria.....	151	-1 28	- 1 45	-2.1	-0.2	0.70	
17	Humboldt Bay Bar.....	40 45	124 15	8 17	Astoria.....	151	-1 05	- 1 21	-2.2	-0.2	0.68	
18	Red Bluff, Humboldt Bay.....	40 45	124 13	8 17	Astoria.....	151	-0 59	- 1 15	-2.1	-0.2	0.70	
19	Eureka, Humboldt Bay.....	40 48	124 10	8 17	Astoria.....	151	-0 41	- 0 55	-1.9	-0.2	0.73	
20	Trinidad Harbor Light.....	41 03	124 09	8 17	Astoria.....	151	-1 11	- 1 29	-1.9	-0.2	0.73	
21	Crescent City Light.....	41 45	124 12	8 17	Astoria.....	151	-1 06	- 1 25	-1.8	-0.2	0.73	
OREGON.												
22	Chetko Cove.....	42 03	124 16	8 17	Astoria.....	151	-0 57	- 1 15	-2.0	-0.2	0.71	
23	Rogue River.....	42 25	124 25	8 18	Astoria.....	151	-0 55	- 1 00	-2.0	-0.2	0.71	
24	Port Orford.....	42 44	124 30	8 18	Astoria.....	151	-1 05	- 1 24	-1.7	-0.2	0.76	
25	Bandon, Coquille River.....	43 07	124 25	8 18	Astoria.....	151	-1 05	- 0 55	-2.3	-0.2	0.67	
Coos Bay.												
26	Coos Bay Bar.....	43 21	124 21	8 17	Astoria.....	151	-0 43	- 0 51	-1.7	-0.2	0.76	
27	Empire.....	43 24	124 17	8 17	Astoria.....	151	0 00	+ 0 01	-2.6	-0.2	0.62	
28	North Bend.....	43 25	124 14	8 17	Astoria.....	151	+0 40	+ 0 44	-2.4	-0.2	0.65	
29	Marshfield.....	43 22	124 13	8 17	Astoria.....	151	+1 51	+ 1 19	-2.1	-0.2	0.70	
Umpqua River.												
30	Bar at Entrance.....	43 41	124 12	8 17	Astoria.....	151	-0 08	- 0 10	-1.4	-0.1	0.79	
31	Gardiner.....	43 44	124 06	8 16	Astoria.....	151	+0 14	+ 0 27	-1.4	-0.2	0.81	
Outer coast.												
32	Sluslaw River Entrance.....	44 01	124 07	8 16	Astoria.....	151	-0 30	- 0 16	-1.2	-0.1	0.83	
33	Alseya Harbor Entrance.....	44 28	124 06	8 16	Astoria.....	151	-0 38	- 0 49	-0.5	0.0	0.92	
Yaquina Bay and River.												
34	Bar at Entrance.....	44 37	124 05	8 16	Astoria.....	151	-0 49	- 1 04	-0.4	0.0	0.94	
35	Newport.....	44 38	124 04	8 16	Astoria.....	151	-0 45	- 1 03	-0.2	0.0	0.97	
36	Yaquina City.....	44 35	124 02	8 16	Astoria.....	151	-0 32	- 0 41	-0.1	0.0	0.98	
37	Oysterville.....	44 35	124 01	8 16	Astoria.....	151	-0 19	- 0 20	0.0	0.0	1.00	
Outer coast.												
38	Nestugga Bay Entrance.....	45 09	123 59	8 16	Astoria.....	151	-0 27	- 0 30	-0.5	0.0	0.92	
39	Hobsonville, Tillamook Bay.....	45 34	123 57	8 16	Astoria.....	151	-0 08	- 0 18	0.0	0.0	1.00	
40	Nehalem River Entrance.....	45 40	123 56	8 16	Astoria.....	151	-0 31	- 0 44	-0.2	0.0	0.97	
OREGON AND WASHINGTON.												
Columbia River.												
41	Columbia River Bar, Oreg.....	46 13	124 05	8 16	Astoria.....	151	-0 29	- 0 31	-0.2	0.0	0.97	
42	Point Adams (Clatsop), Oreg.....	46 12	123 59	8 16	Astoria.....	151	-0 09	- 0 12	-0.1	0.0	0.98	
43	Cape Disappointment, Wash.....	46 17	124 03	8 16	Astoria.....	151	-0 17	- 0 22	-0.1	0.0	0.98	
44	ASTORIA, Oreg.....	46 11	123 50	8 15	Astoria.....	151	0 00	0 00	0.0	0.0	1.00	
45	Skeppernawin Creek, Oreg.....	46 10	123 55	8 15	Astoria.....	151	-0 02	+ 0 05	+0.2	0.0	1.03	
46	Tongue Point, Oreg.....	46 13	123 46	8 15	Astoria.....	151	+0 19	+ 0 30	-0.1	0.0	0.98	
47	Marsh Island Creek, Oreg.....	46 14	123 35	8 14	Astoria.....	151	+0 41	+ 0 54	-0.5	0.0	0.92	
48	Three Tree Point, Wash.....	46 16	123 31	8 14	Astoria.....	151	+1 03	+ 1 16	-0.8	0.0	0.87	
49	Cathlamet, Wash.....	46 12	123 23	8 14	San Diego.....	143	+5 12	+ 6 11	+1.2	+0.1	1.28	
50	Eagle Cliff, Wash.....	46 11	123 12	8 13	San Diego.....	143	+5 34	+ 7 06	0.0	0.0	0.99	
51	Oak Point, Wash.....	46 11	123 11	8 13	San Diego.....	143	+5 49	+ 7 17	-0.2	-0.1	0.97	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.				Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	2 38	9 21	1 42b	9 42b	3.9	4.7	3.0	6.6	1.6	3.7	.....	4.1	3.3	3.7	17.5
2	7 21	3 06	5 52b	3 39a	1.5	1.8	1.2	3.2	1.0	2.8	.....	2.5	1.6	1.8	17.0
3	11 33	5 17	10 36a	5 35b	4.3	5.2	3.3	7.1	1.5	4.1	.....	4.4	3.6	4.1	17.0
4	11 23	5 08	10 24a	5 27b	4.2	5.1	3.2	7.1	1.5	4.0	.....	4.4	3.5	4.1	17.0
5	12 00	5 00	10 58a	6 10b	3.7	4.5	2.9	6.3	1.4	3.8	.....	4.1	3.2	3.6	17.0
6	11 19	5 03	10 17a	5 23b	3.8	4.6	2.9	6.5	1.4	3.9	.....	4.2	3.3	3.7	17.0
7	11 05	4 49	10 03a	5 09b	3.7	4.5	2.9	6.3	1.4	3.8	.....	4.1	3.2	3.6	17.5
8	10 36	4 21	9 32a	4 42b	3.4	4.1	2.6	5.9	1.3	3.6	.....	3.9	3.0	3.3	17.5
9	10 39	4 25	9 35a	4 46b	3.6	4.4	2.8	6.2	1.4	3.8	.....	4.1	3.1	3.5	17.5
10	10 30	4 17	9 30a	4 36b	4.0	4.8	3.1	6.8	1.5	4.0	.....	4.3	3.4	3.9	17.5
11	10 35	4 24	9 33a	4 44b	3.8	4.6	2.9	6.5	1.4	3.9	.....	4.2	3.2	3.7	18.0
12	11 00	4 50	10 00a	5 09b	3.9	4.7	3.0	6.6	1.4	3.9	.....	4.2	3.3	3.8	18.0
13	11 00	4 44	10 00a	5 03b	4.0	4.8	3.1	6.8	1.5	4.0	.....	4.3	3.4	3.9	18.0
14	10 50	4 35	9 50a	4 54b	4.0	4.8	3.1	6.8	1.5	4.0	.....	4.3	3.4	3.9	18.0
15	11 00	4 50	10 00a	5 09b	3.9	4.7	3.0	6.6	1.4	3.9	.....	4.2	3.3	3.8	18.0
16	11 10	4 55	10 28a	5 15b	4.4	5.5	3.2	6.5	1.6	3.1	.....	3.5	3.3	3.6	18.0
17	11 33	5 19	10 51a	5 39b	4.3	5.3	3.1	6.4	1.6	3.0	.....	3.5	3.2	3.5	18.5
18	11 39	5 25	10 57a	5 45b	4.4	5.5	3.2	6.5	1.6	3.1	.....	3.5	3.3	3.6	18.5
19	11 57	5 45	11 16a	6 05b	4.6	5.7	3.3	6.7	1.6	3.1	.....	3.6	3.4	3.7	18.5
20	11 27	5 11	10 46a	5 31b	4.6	5.7	3.3	6.7	1.6	3.1	.....	3.6	3.4	3.7	18.5
21	11 33	5 15	10 53a	5 34b	4.7	5.8	3.4	6.9	1.6	3.2	.....	3.6	3.5	3.8	19.0
22	11 41	5 25	11 00a	5 45b	4.5	5.6	3.2	6.5	1.6	3.1	.....	3.5	3.4	3.6	19.0
23	11 42	5 39	11 01a	5 59b	4.5	5.6	3.2	6.5	1.6	3.1	.....	3.5	3.4	3.6	19.5
24	11 32	5 15	10 52a	5 34b	4.8	6.0	3.5	7.0	1.7	3.2	.....	3.7	3.5	3.8	19.5
25	11 32	5 44	10 50a	6 04b	4.2	5.2	3.0	6.3	1.6	3.0	.....	3.4	3.2	3.5	19.5
26	11 55	5 49	11 15a	6 08b	4.8	6.0	3.5	7.0	1.7	3.2	.....	3.7	3.5	3.8	20.0
27	0 13	6 41	— 0 31b	7 02b	3.9	4.8	2.8	5.9	1.5	2.9	.....	3.3	3.0	3.3	20.0
28	0 53	7 24	0 10b	7 45b	4.1	5.1	3.0	6.1	1.5	3.0	.....	3.4	3.1	3.4	20.0
29	2 04	7 59	1 22b	8 19b	4.4	5.3	3.2	6.5	1.6	3.1	.....	3.5	3.3	3.6	20.0
30	0 06	6 30	— 0 33b	6 48b	5.0	6.2	3.6	7.3	1.7	3.3	.....	3.7	3.7	4.0	20.0
31	0 36	7 08	— 0 03b	7 27b	5.1	6.3	3.7	7.4	1.7	3.3	.....	3.8	3.7	4.0	20.0
32	12 09	6 25	11 31a	6 48b	5.2	6.5	3.7	7.5	1.7	3.4	.....	3.8	3.8	4.1	20.5
33	12 01	5 52	11 25a	6 09b	5.8	7.2	4.2	8.2	1.8	3.5	.....	4.0	4.2	4.5	20.5
34	11 50	5 37	11 14a	5 54b	5.9	7.3	4.3	8.3	1.8	3.6	.....	4.1	4.2	4.7	21.0
35	11 54	5 38	11 19a	5 55b	6.1	7.6	4.4	8.6	1.9	3.6	.....	4.1	4.3	4.7	21.0
36	12 07	6 00	11 32a	6 17b	6.2	7.7	4.5	8.7	1.9	3.7	.....	4.2	4.4	4.8	20.5
37	12 20	6 21	11 45a	6 38b	6.3	7.8	4.5	8.8	1.9	3.7	.....	4.2	4.5	4.9	20.5
38	12 12	6 11	11 36a	6 28b	5.8	7.2	4.2	8.2	1.9	3.5	.....	4.0	4.2	4.5	21.0
39	12 31	6 23	11 56a	6 40b	6.3	7.8	4.5	8.8	1.9	3.7	.....	4.2	4.5	4.9	21.5
40	12 08	5 57	11 33a	6 14b	6.1	7.6	4.4	8.6	1.9	3.6	.....	4.1	4.3	4.7	21.5
41	12 10	6 10	11 35a	6 27b	6.1	7.6	4.4	8.6	1.9	3.6	.....	4.1	4.3	4.7	22.0
42	0 05	6 29	— 0 30b	6 46b	6.2	7.7	4.5	8.7	1.9	3.7	.....	4.2	4.4	4.8	22.0
43	12 22	6 19	11 47a	6 36b	6.2	7.7	4.5	8.7	1.9	3.7	.....	4.2	4.4	4.8	22.0
44	0 15	6 42	— 0 22b	6 58b	6.4	7.7	4.8	9.0	2.0	4.0	8 19	4.3	4.6	4.9	22.0
45	0 12	6 46	— 0 22b	7 02b	6.5	8.1	4.7	9.0	1.9	3.7	.....	4.3	4.6	4.9	22.0
46	0 34	7 12	— 0 01b	7 29b	6.2	7.7	4.5	8.7	1.9	3.7	.....	4.2	4.4	4.8	22.0
47	0 57	7 37	0 21b	7 54b	5.8	7.2	4.2	8.2	1.8	3.5	.....	4.0	4.2	4.5	22.0
48	1 19	7 59	0 42b	8 17b	5.5	6.8	4.0	7.9	1.8	3.5	.....	3.9	4.0	4.3	22.0
49	1 53	9 05	1 13b	9 24b	4.9	6.1	3.5	7.2	1.7	3.3	.....	3.7	3.6	3.9	21.5
50	2 16	10 01	1 31b	10 23b	3.8	4.7	2.7	5.8	1.5	2.9	.....	3.3	2.9	3.2	21.5
51	2 31	10 12	1 46b	10 34b	3.7	4.6	2.7	5.6	1.5	2.8	.....	3.2	2.8	3.1	21.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (WEST COAST)—Continued.											
OREGON AND WASHINGTON—cont'd.											
Columbia River—Continued.											
		North.	West.				Time meridian, 120° W.		Mean Lower Low Water.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Rinearson, Oreg.....	46 06	123 05	8 12	San Diego.....	143	+6 12	+7 38	-0.7	-0.1	0.84
2	Rainier, Oreg.....	46 05	122 56	8 12	San Diego.....	143	+6 25	+7 59	-1.1	-0.2	0.76
3	Kalama, Wash.....	46 00	122 51	8 11	San Diego.....	143	+6 55	+8 28	-1.4	-0.2	0.68
4	St. Helens Bar, Oreg.....	45 51	122 48	8 11	San Diego.....	143	+7 56	+9 28	-2.1	-0.3	0.52
5	Willamette River Entrance, Oreg.....	45 39	122 46	8 11	San Diego.....	143	+9 27	+10 55	-3.2	-0.5	0.29
6	Old Fort Vancouver, Wash.....	45 37	122 39	8 11	San Diego.....	143	+9 58	+11 29	-3.5	-0.5	0.21
WASHINGTON—continued.											
7	Willapa Bay Entrance.....	46 38	124 06	8 16	Astoria.....	151	-0 14	-0 41	-0.1	0.0	0.98
8	South Bend, Willapa Bay.....	46 40	123 48	8 15	Astoria.....	151	+0 30	-0 07	+1.4	+0.2	1.19
9	Oysterville, Willapa Bay.....	46 32	124 02	8 16	Astoria.....	151	+0 21	-0 11	+1.2	+0.1	1.17
10	Sealand, Willapa Bay.....	46 29	124 02	8 16	Astoria.....	151	+0 31	-0 01	+1.2	+0.1	1.17
11	Grays Harbor Entrance.....	46 54	124 10	8 17	Astoria.....	151	-0 23	-0 55	+0.6	0.0	1.16
12	Hoquiam, Grays Harbor.....	46 56	123 53	8 16	Astoria.....	151	+0 12	-0 13	+2.2	+0.2	1.32
13	Laidlaw, Grays Harbor.....	46 52	124 05	8 16	Astoria.....	151	-0 10	-0 13	+0.8	+0.1	1.11
14	Destruction Island.....	47 40	124 30	8 18	Astoria.....	151	-0 37	-0 44	+1.0	0.0	1.15
15	Quillihute River.....	47 53	124 39	8 19	Astoria.....	151	-0 18	-0 38	+0.4	0.0	1.08
16	Cape Alava (Flattery Rocks).....	48 10	124 44	8 19	Astoria.....	151	-0 29	-0 36	+0.8	0.0	1.13
Juan de Fuca Strait.											
17	Cape Flattery Lt., Tatoosh Island.....	48 23	124 44	8 19	Astoria.....	151	-0 08	-0 22	-0.8	0.0	0.90
18	Neah Bay.....	48 22	124 38	8 19	Astoria.....	151	-0 11	-0 20	-0.7	-0.1	0.92
19	Pysht River Entrance.....	48 13	124 07	8 16	Astoria.....	151	+1 03	+0 35	-1.2	-0.2	0.84
20	Port Angeles.....	48 08	123 26	8 14	Port Townsend.....	155	-1 33	-1 06	-2.3	-1.5	0.46
21	New Dungeness Light.....	48 11	123 07	8 12	Port Townsend.....	155	-1 04	-0 57	-2.6	-1.6	0.82
22	Washington Harbor.....	48 04	123 02	8 12	Port Townsend.....	155	-0 40	-0 29	-1.9	-1.5	0.94
23	Port Discovery.....	48 02	122 52	8 11	Port Townsend.....	155	-0 28	-0 20	-1.8	-1.4	0.96
24	Smith Island Light.....	48 19	122 51	8 11	Port Townsend.....	155	-0 07	-0 04	-2.0	-1.6	0.92
25	Partridge Point.....	48 14	122 46	8 11	Port Townsend.....	155	-0 01	-0 02	-1.6	-1.4	0.98
Admiralty Inlet.											
26	PORT TOWNSEND.....	48 07	122 45	8 11	Port Townsend.....	155	0 00	0 00	0.0	0.0	1.00
27	Marrowstone Point.....	48 06	122 41	8 11	Port Townsend.....	155	+0 09	+0 15	+0.4	0.0	1.16
28	Oak Bay.....	48 01	122 43	8 11	Port Townsend.....	155	+0 11	+0 19	+1.0	0.0	1.18
Hood Canal.											
29	Port Ludlow.....	47 56	122 41	8 11	Port Townsend.....	155	+0 13	+0 24	+1.4	+0.2	1.24
30	Port Gamble.....	47 51	122 34	8 10	Port Townsend.....	155	+0 15	+0 27	+1.9	+0.3	1.31
31	Seabeck.....	47 38	122 49	8 11	Port Townsend.....	155	+0 47	+1 01	+3.4	+0.6	1.57
32	Union City.....	47 21	123 06	8 12	Port Townsend.....	155	+0 32	+0 59	+3.6	+0.6	1.59
Puget Sound.											
33	Point No Point Light.....	47 55	122 32	8 10	Port Townsend.....	155	+0 19	+0 29	+1.8	+0.2	1.29
34	Port Madison.....	47 42	122 32	8 10	Port Townsend.....	155	+0 32	+0 50	+2.5	+0.1	1.47
35	West Point Light, Shilshole Bay.....	47 39	122 26	8 10	Port Townsend.....	155	+0 38	+0 57	+2.6	+0.2	1.49
36	Seattle, Elliott Bay.....	47 37	122 20	8 09	Port Townsend.....	155	+0 33	+0 59	+2.8	+0.2	1.51
37	Port Blakely.....	47 36	122 31	8 10	Port Townsend.....	155	+0 37	+0 56	+3.0	+0.2	1.53
38	Bremerton, Port Orchard Naval Sta.....	47 34	122 37	8 10	Port Townsend.....	155	+0 39	+1 02	+2.6	0.0	1.53
39	Tacoma.....	47 16	122 26	8 10	Port Townsend.....	155	+0 44	+1 12	+3.6	+0.6	1.61
40	Stellacoom.....	47 11	122 36	8 10	Port Townsend.....	155	+0 58	+1 31	+4.8	+0.8	1.80
41	Dofflemeyer Point, Budd Inlet.....	47 08	122 54	8 12	Port Townsend.....	155	+1 05	+1 43	+6.7	+1.1	2.10
42	Olympia, Budd Inlet.....	47 04	122 54	8 12	Port Townsend.....	155	+1 09	+1 49	+6.8	+1.0	2.12
Possession Sound and Port Susan.											
43	Muckilteo.....	47 57	122 18	8 09	Port Townsend.....	155	+0 36	+0 51	+2.1	+0.3	1.35
44	Tulalip.....	48 03	122 17	8 09	Port Townsend.....	155	+0 26	+1 06	+2.6	+0.4	1.43
45	Livingston Bay.....	48 14	122 27	8 10	Port Townsend.....	155	+0 51	+0 56	+4.6	+0.8	1.76
Saratoga Passage.											
46	Holmes Harbor.....	48 03	122 33	8 10	Port Townsend.....	155	+0 29	+0 57	+4.0	+0.6	1.67
47	Coupeville.....	48 13	122 41	8 11	Port Townsend.....	155	+0 32	+1 03	+3.6	+0.6	1.61
Skagit Bay.											
48	Utsalady.....	48 15	122 30	8 10	Port Townsend.....	155	+0 32	+1 08	+3.3	+0.5	1.55
49	La Conner.....	48 23	122 30	8 10	Port Townsend.....	155	+0 37	+1 06	+3.1	+0.5	1.51
50	Deception Pass.....	48 25	122 37	8 10	Port Townsend.....	155	+0 17	+0 32	0.0	-0.2	1.02

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc.)	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	2 55	10 34	2 06b	10 58b	3.2	4.0	2.3	5.0	1.4	2.6	.....	3.0	2.5	2.8	21.5
2	3 08	10 55	2 18b	11 19b	2.9	3.6	2.1	4.6	1.3	2.5	.....	2.8	2.3	2.6	21.5
3	3 39	11 25	2 45b	11 51b	2.6	3.2	1.9	4.2	1.2	2.4	.....	2.7	2.1	2.4	21.5
4	4 40	0 00	3 89b	0 30a	2.0	2.5	1.4	3.4	1.1	2.1	.....	2.4	1.7	1.9	21.5
5	6 11	1 30	4 46b	2 11a	1.1	1.4	0.8	2.1	0.8	1.5	.....	1.8	1.1	1.2	21.5
6	6 42	2 01	5 04b	2 48a	0.8	1.0	0.6	1.7	0.7	1.3	.....	1.5	0.9	1.0	21.5
7	0 00	6 00	— 0 35b	6 17b	6.2	7.7	4.5	8.7	1.9	3.7	.....	4.2	4.4	4.8	22.0
8	0 45	6 35	0 13b	6 50b	7.5	9.3	5.4	10.3	2.1	4.0	.....	4.6	5.2	5.6	22.0
9	0 35	6 30	0 08b	6 45b	7.4	9.2	5.3	10.2	2.1	4.0	.....	4.5	5.1	5.5	22.0
10	0 45	6 40	0 13b	6 55b	7.4	9.2	5.3	10.2	2.1	4.0	.....	4.5	5.1	5.5	22.0
11	12 15	5 45	11 42a	6 01b	6.9	8.6	5.0	9.6	2.0	3.9	.....	4.4	4.8	5.2	22.0
12	0 26	6 28	— 0 04b	6 42b	8.3	10.3	6.0	11.2	2.2	4.2	.....	4.8	5.6	6.0	22.5
13	0 04	6 28	— 0 29b	6 44b	7.0	8.7	5.0	9.7	2.0	3.9	.....	4.4	4.9	5.3	22.5
14	12 00	5 55	11 28a	6 11b	7.8	9.1	5.3	10.0	2.0	4.0	.....	4.5	5.0	5.5	23.0
15	12 18	6 00	11 45a	6 16b	6.7	8.3	4.8	9.3	2.0	3.8	.....	4.3	4.7	5.2	23.0
16	12 07	6 02	11 35a	6 18b	7.1	8.8	5.1	9.8	2.0	3.9	.....	4.4	4.9	5.3	23.0
17	0 06	6 16	— 0 28b	6 34b	5.7	7.1	4.1	8.1	1.8	3.5	.....	4.0	4.1	4.4	23.5
18	0 00	6 18	— 0 36b	6 35b	5.8	7.2	4.2	8.2	1.8	3.5	.....	4.0	4.1	4.5	23.5
19	1 17	7 16	0 39b	7 34b	5.3	6.6	3.3	7.7	1.8	3.4	.....	3.9	3.8	4.2	23.0
20	2 10	8 23	3 41a	8 16b	4.4	5.3	3.4	8.3	1.0	7.5	.....	7.5	4.8	5.7	23.0
21	2 42	8 34	4 39a	8 27b	4.2	5.0	3.3	8.2	0.9	7.1	.....	7.1	4.6	5.3	23.0
22	3 06	9 02	4 55a	8 56b	4.8	5.8	3.7	9.1	1.0	7.6	.....	7.6	5.0	5.8	23.0
23	3 19	9 12	5 07a	9 06b	4.9	5.9	3.8	9.3	1.0	7.7	.....	7.7	5.1	5.9	23.0
24	3 40	9 28	5 35a	9 29b	4.7	5.6	3.7	9.0	1.0	7.5	.....	7.5	4.9	5.7	23.0
25	3 46	9 30	5 38a	9 34b	5.0	6.0	3.9	9.4	1.0	7.8	.....	7.8	5.2	6.0	23.0
26	3 47	9 32	5 39a	9 25b	5.2	6.2	4.0	9.5	0.6	8.1	9 26	8.1	7.4	6.2	23.0
27	3 56	9 47	5 37a	9 41b	5.6	6.7	4.4	10.3	1.1	8.2	.....	8.2	7.6	6.5	23.0
28	3 58	9 51	5 36a	9 45b	6.0	7.2	4.7	10.8	1.1	8.5	.....	8.5	7.9	6.8	23.0
29	4 00	9 56	5 35a	9 50b	6.3	7.6	4.9	11.3	1.2	8.7	.....	8.7	8.2	7.1	23.0
30	4 03	10 00	5 35a	9 55b	6.7	8.0	5.2	11.8	1.2	9.0	.....	9.0	8.5	7.4	23.0
31	4 34	10 33	5 58a	10 28b	8.0	9.6	6.2	13.6	1.3	9.8	.....	9.8	9.4	8.4	22.5
32	4 18	10 30	5 42a	10 25b	8.1	9.7	6.3	13.7	1.3	9.9	.....	9.9	9.5	8.5	22.5
33	4 07	10 02	5 40a	9 57b	6.6	7.9	5.2	11.7	1.2	8.9	.....	8.9	8.4	7.3	23.0
34	4 20	10 23	5 38a	10 18b	7.5	9.0	5.8	12.5	1.3	8.5	.....	8.5	8.7	7.0	23.0
35	4 21	10 30	5 33a	10 20b	7.6	9.1	5.9	12.6	1.4	8.6	.....	8.6	8.8	7.7	22.5
36	4 22	10 33	5 34a	10 24b	7.7	9.2	6.0	12.7	1.4	8.7	9 52	8.6	8.9	7.8	22.5
37	4 25	10 29	5 51a	10 24b	7.8	9.4	6.1	13.3	1.3	8.8	.....	8.8	9.0	8.3	22.5
38	4 27	10 35	5 49a	10 30b	7.8	9.4	6.1	13.3	1.3	8.0	.....	8.0	8.7	8.6	22.5
39	4 32	10 45	5 55a	10 40b	8.2	9.8	6.4	13.8	1.3	9.9	.....	9.9	9.5	8.6	22.5
40	4 46	11 04	6 05a	10 59b	9.2	11.0	7.2	15.2	1.4	10.5	.....	10.5	10.2	9.3	22.5
41	4 51	11 14	6 04a	11 10b	10.7	12.8	8.4	17.1	1.5	11.3	.....	11.3	11.3	10.5	22.5
42	4 55	11 20	6 08a	11 16b	10.8	13.0	8.4	17.3	1.5	11.4	.....	11.4	11.3	10.6	22.5
43	4 25	10 25	5 56a	10 20b	6.9	8.3	5.4	12.1	1.2	9.1	.....	9.1	8.6	7.6	23.0
44	4 15	10 42	5 44a	10 37b	7.3	8.8	5.7	12.6	1.2	9.3	.....	9.4	8.9	7.9	23.0
45	4 39	10 29	5 59a	10 24b	9.0	10.8	7.0	14.9	1.4	10.4	.....	10.4	10.1	9.1	23.0
46	4 17	10 30	5 39a	10 25b	8.5	10.2	6.6	14.3	1.3	10.1	.....	10.1	9.7	8.9	23.0
47	4 19	10 35	5 42a	10 30b	8.2	9.8	6.4	13.9	1.3	9.9	.....	9.9	9.5	8.6	23.0
48	4 20	10 36	5 46a	10 31b	7.9	9.5	6.2	13.5	1.3	9.7	.....	9.8	9.3	8.4	23.0
49	4 25	10 39	5 51a	10 34b	7.7	9.2	6.0	13.2	1.3	9.6	.....	9.6	9.2	8.3	23.0
50	4 05	10 05	5 50a	9 59b	5.2	6.2	4.1	9.7	1.0	7.9	.....	7.9	7.3	6.2	23.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of ranges.	
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.		LW.
NORTH AMERICA (WEST COAST)—Continued.											
WASHINGTON—continued.											
Rosario Strait, etc.											
		North.	West.				Time meridian, 120° W.		Mean Lower Low Water.		
		°	°	h. m.			h. m.	h. m.	feet.	feet.	
1	Burrows Bay, Allan Island.....	48 29	122 42	8 11	Port Townsend...	155	+0 16	+0 13	-2.0	-2.2	1.02
2	Anacortes, Fidalgo Island.....	48 31	122 36	8 10	Port Townsend...	155	+0 14	+0 46	-0.6	-1.8	1.24
3	Thatcher Pass, Decatur Island.....	48 32	122 48	8 11	Port Townsend...	155	+0 38	+0 28	-1.8	-2.0	1.06
4	Peavine Pass, Obstruction Island.....	48 36	122 48	8 11	Port Townsend...	155	+0 41	+0 28	-1.6	-2.0	1.08
5	Strawberry Bay, Cypress Island.....	48 34	122 43	8 11	Port Townsend...	155	+0 33	+0 28	-1.9	-2.1	1.04
6	Eagle Harbor, Cypress Island.....	48 35	122 42	8 11	Port Townsend...	155	+0 43	+0 58	-1.6	-2.0	1.08
Padilla Bay.											
7	Bayview.....	48 29	122 29	8 10	Port Townsend...	155	+1 02	+1 17	-1.6	-2.0	1.10
	Hat Island.....	48 32	122 33	8 10	Port Townsend...	155	+0 42	+1 07	-1.8	-2.0	1.06
Bellingham Bay.											
9	William Point, Samish Island.....	48 35	122 32	8 10	Port Townsend...	155	+0 47	+0 57	-1.9	-2.1	1.04
10	Chuckanut Bay.....	48 40	122 30	8 10	Port Townsend...	155	+0 57	+0 55	-2.0	-2.2	1.02
11	Fairhaven.....	48 43	122 31	8 10	Port Townsend...	155	+0 59	+0 57	-2.0	-2.2	1.02
Lummi Bay.											
12	Point Migley.....	48 45	122 43	8 11	Port Townsend...	155	+1 03	+1 01	-2.0	-2.2	1.02
13	Sandy Point.....	48 47	122 42	8 11	Port Townsend...	155	+1 06	+1 13	-1.9	-2.1	1.04
Georgia Strait.											
14	Birch Bay.....	48 55	122 45	8 11	Port Townsend...	155	+1 09	+1 26	-1.6	-2.0	1.10
15	Drayton Harbor, Semiamoo Bay.....	49 00	122 46	8 11	Port Townsend...	155	+1 12	+1 38	-1.1	-1.9	1.16
San Juan Channel.											
16	Cattle Point, San Juan Island.....	48 27	122 58	8 12	Port Townsend...	155	-0 18	-0 09	-2.2	-2.2	0.98
17	Green Point, Spieden Island.....	48 38	123 07	8 12	Port Townsend...	155	-0 03	+0 17	-1.6	-2.0	1.06
Haro Strait.											
18	Kanaka Bay, San Juan Island.....	48 29	123 04	8 12	Port Townsend...	155	-0 16	-0 01	-2.0	-2.2	1.02
19	Roche Harbor, San Juan Island.....	48 37	123 08	8 13	Port Townsend...	155	-0 10	+0 06	-1.8	-2.0	1.06
20	Turn Point, Stuart Island.....	48 41	123 14	8 13	Port Townsend...	155	+0 06	+0 26	-1.4	-2.0	1.12
21	Alden Point, Patos Island.....	48 47	122 58	8 12	Port Townsend...	155	+0 31	+0 52	-1.4	-2.0	1.12
BRITISH COLUMBIA.											
22	*Esquimalt Harbor, Vancouver I.....	48 26	123 27	8 14	Port Townsend...	155	+1 35	-1 06	-2.8	-3.4	0.72
23	*Victoria Harbor, Vancouver Island.....	48 25	123 23	8 14	Port Townsend...	155	+1 18	-0 49	-3.0	-3.4	0.71
24	*Discovery Island Light.....	48 25	123 13	8 13	Port Townsend...	155	+1 07	-0 38	-3.2	-3.4	0.68
25	Active Pass, Mayne Island.....	48 52	123 18	8 13	Port Townsend...	155	+1 20	+1 45	-0.6	-1.4	1.16
26	Cowichan Harbor, Vancouver I.....	48 46	123 37	8 14	Port Townsend...	155	+1 20	+1 46	-0.6	-1.4	1.16
27	Maple Bay, Vancouver Island.....	48 50	123 36	8 14	Port Townsend...	155	+1 26	+1 53	-0.6	-1.4	1.16
28	Oyster Harbor, Vancouver Island.....	49 00	123 48	8 15	Port Townsend...	155	+1 47	+2 17	0.0	-1.2	1.28
29	North Sand Heads Light, Fraser R.....	49 05	123 16	8 13	Port Townsend...	155	+1 26	+1 53	-0.7	-1.5	1.12
30	Atkinson Point Lt., Burrard Inlet.....	49 20	123 16	8 13	Port Townsend...	155	+1 35	+2 05	+0.2	-1.4	1.31
31	Vancouver, Burrard Inlet.....	49 17	123 11	8 13	Port Townsend...	155	+1 43	+2 31	+0.3	-1.3	1.33
32	Port Graves, Gambier I., Howe Id.....	49 29	123 24	8 14	Port Townsend...	155	+1 54	+2 29	+1.4	-1.2	1.51
33	Watts Point, Howe Sound.....	49 41	123 13	8 13	Port Townsend...	155	+2 05	+2 50	+2.2	-1.0	1.65
34	Nanaimo Harbor, Vancouver I.....	49 10	123 57	8 16	Port Townsend...	155	+0 58	+1 38	+2.2	-1.0	1.65
35	Nanosee Harbor, Vancouver I.....	49 16	124 10	8 17	Port Townsend...	155	+1 11	+1 51	+2.6	-1.0	1.71
36	Pender Harbor, Malaspina Strait.....	49 38	124 03	8 16	Port Townsend...	155	+2 18	+1 48	+2.4	-1.0	1.69
37	Port Augusta, Vancouver Island.....	49 37	124 51	8 19	Port Townsend...	155	+1 06	+1 36	+3.0	-1.0	1.71
38	Baker Passage, Hernando Island.....	50 01	124 57	8 20	Port Townsend...	155	+2 02	+2 37	+3.6	-0.8	1.88
39	Surge Narrows, Read Island.....	50 16	125 07	8 20	Port Townsend...	155	+2 05	+2 37	+4.2	-0.8	1.94
40	Rendezvous Islands.....	50 17	125 05	8 20	Port Townsend...	155	+3 02	+2 02	+4.2	-0.8	1.94
41	Stuart Island, Bute Inlet.....	50 23	125 09	8 21	Port Townsend...	155	+2 02	+2 51	+4.2	-0.8	1.94
42	Waddington Harbor, Bute Inlet.....	50 05	124 52	8 19	Port Townsend...	155	+3 16	+4 11	+4.2	-0.8	1.94
43	Gowlland Har., Discovery Passage.....	50 05	125 16	8 21	Port Townsend...	155	+1 08	+0 53	-0.2	-1.1	1.21
44	SEYMOUR NARROWS, Discovery P.....	50 08	125 23	8 22	Port Townsend...	155	-0 57	-0 30	+0.6	-1.0	1.31
45	Cameleon Harbor, Nodales Chan.....	50 20	125 20	8 21	Sitka.....	159	+3 03	+2 21	+2.4	-1.4	1.81
46	Knox Bay, Thurlow Island.....	50 24	125 39	8 23	Sitka.....	159	+3 55	+4 03	+3.5	-1.3	1.62
47	Beaver Creek, Loughboro Inlet.....	50 31	125 38	8 23	Sitka.....	159	+3 45	+3 51	+2.0	-1.4	1.61
48	Forward Harbor.....	50 29	125 47	8 23	Sitka.....	159	+3 15	+3 23	+2.5	-1.3	1.49
49	Topuzze Harbor.....	50 32	125 48	8 23	Sitka.....	159	+3 15	+3 23	+2.5	-1.3	1.49
50	Port Neville.....	50 31	126 04	8 24	Sitka.....	159	+2 46	+2 51	+3.5	-1.3	1.62
51	Port Harvey, Call Creek.....	50 34	126 17	8 25	Sitka.....	159	+2 12	+2 15	+2.0	-1.4	1.41

\*As the tide is chiefly diurnal at these stations, the differences should be applied to only the higher high and lower low water at Port Townsend.

†The time of slack water at Seymour Narrows is given in Table 9 of this volume.

Number.	Interval.				Range of tide,				Tropic diurnal inequality.		Diurnal wave		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWL.	LWL.	HHWL.	LLWL.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	4 03	9 45	5 48a	9 39b	5.2	6.2	4.1	9.7	1.0	7.9	.....	7.9	5.3	6.2	23.0
2	4 02	10 19	6 00a	9 54b	6.3	7.5	5.0	11.3	1.2	8.7	.....	8.8	6.2	7.1	23.0
3	4 25	10 00	6 09a	9 54b	5.4	6.5	4.2	10.0	1.1	8.1	.....	8.1	5.5	6.3	23.0
4	4 28	10 00	6 11a	9 54b	5.5	6.6	4.3	10.1	1.1	8.1	.....	8.2	5.6	6.4	23.0
5	4 20	10 00	6 04a	9 54b	5.3	6.4	4.1	9.9	1.1	8.0	.....	8.0	5.4	6.3	23.0
6	4 30	10 30	6 13a	10 24b	5.5	6.6	4.3	10.1	1.1	8.1	.....	8.2	5.6	6.4	23.0
7	4 50	10 50	6 31a	10 44b	5.6	6.7	4.4	10.3	1.1	8.2	.....	8.2	5.6	6.4	23.5
8	4 30	10 40	6 14a	10 34b	5.4	6.5	4.2	10.0	1.1	8.1	.....	8.1	5.5	6.3	23.5
9	4 35	10 30	6 19a	10 24b	5.3	6.4	4.1	9.9	1.1	8.0	.....	8.0	5.4	6.3	23.5
10	4 45	10 28	6 30a	10 22b	5.2	6.2	4.1	9.7	1.0	7.9	.....	7.9	5.3	6.2	23.5
11	4 47	10 30	6 32a	10 24b	5.2	6.2	4.1	9.7	1.0	7.9	.....	7.9	5.3	6.2	23.5
12	4 50	10 33	6 35a	10 27b	5.2	6.2	4.1	9.7	1.0	7.9	.....	7.9	5.3	6.2	23.5
13	4 53	10 45	6 37a	10 39b	5.3	6.4	4.1	9.9	1.1	8.0	.....	8.0	5.4	6.3	23.5
14	4 56	10 58	6 37b	10 52b	5.6	6.7	4.4	10.3	1.1	8.2	.....	8.2	5.6	6.5	23.5
15	4 59	11 10	6 37b	11 04b	5.9	7.1	4.6	10.7	1.1	8.4	.....	8.4	5.9	6.8	23.5
16	3 28	9 22	5 16b	9 15b	5.0	6.0	3.9	9.4	1.0	7.8	.....	7.8	5.2	6.0	23.5
17	3 43	9 48	5 26b	9 42b	5.5	6.6	4.3	10.1	1.1	8.1	.....	8.2	5.6	6.4	23.5
18	3 30	9 30	5 15b	9 24b	5.2	6.2	4.1	9.7	1.0	7.9	.....	7.9	5.3	6.2	23.5
19	3 35	9 36	5 19b	9 30b	5.4	6.5	4.2	10.0	1.1	8.1	.....	8.1	5.5	6.3	23.5
20	3 51	9 56	5 32b	9 50b	5.7	6.8	4.5	10.4	1.1	8.3	.....	8.3	5.7	6.6	23.5
21	4 17	10 23	5 58b	10 17b	5.7	6.8	4.5	10.4	1.1	8.3	.....	8.3	5.7	6.6	23.5
22	[2 00]	[8 14]	7 11b	8 16b	[2.7]	[3.4]	[2.0]	6.8	.....	.....	9 13	6.8	3.6	4.6	23.5
23	[2 17]	[8 31]	6 54b	8 33b	[2.6]	[3.2]	[1.9]	6.7	.....	.....	.....	6.7	3.5	4.5	23.0
24	[2 27]	[8 41]	6 44b	8 49b	[2.4]	[3.0]	[1.8]	6.5	.....	.....	.....	6.6	3.4	4.4	23.0
25	5 05	11 15	6 43b	11 09b	5.9	7.0	4.6	10.7	1.1	8.0	.....	8.0	5.7	6.7	23.5
26	5 04	11 15	6 42b	11 09b	5.9	7.0	4.6	10.7	1.1	8.0	.....	8.0	5.7	6.7	23.5
27	5 10	11 22	6 48b	11 16b	5.9	7.0	4.6	10.7	1.1	8.0	.....	8.0	5.7	6.7	23.5
28	5 30	11 45	7 05b	11 39b	6.4	7.6	5.0	11.4	1.2	8.4	.....	8.4	6.1	7.1	23.5
29	5 11	11 23	6 45b	11 15b	6.0	7.0	4.4	10.4	1.2	7.5	.....	7.6	5.6	6.9	24.0
30	5 20	11 35	6 49b	11 28b	6.7	7.8	4.9	11.3	1.2	7.9	.....	8.0	6.1	7.2	24.0
31	5 28	12 01	6 56b	11 53b	6.8	8.2	5.0	11.9	1.1	8.2	12 00	8.3	6.2	7.3	24.0
32	5 38	11 58	7 01b	11 51b	7.7	9.0	5.6	12.6	1.3	8.5	.....	8.6	6.8	8.0	24.0
33	5 50	12 20	7 09b	12 14b	8.4	9.8	6.1	13.5	1.3	8.9	.....	9.0	7.3	8.6	24.0
34	4 40	11 05	6 59b	10 59b	8.4	9.8	6.1	13.5	1.3	8.9	.....	9.0	7.3	8.6	24.0
35	4 52	11 18	6 10b	11 12b	8.7	10.2	6.4	13.9	1.4	9.0	.....	9.1	7.6	8.8	24.0
36	5 00	11 15	6 18b	11 00b	8.6	10.1	6.3	13.8	1.4	9.0	.....	9.1	7.4	8.7	24.0
37	4 45	11 00	6 00b	10 54b	9.1	10.6	6.6	14.4	1.4	9.2	.....	9.3	7.7	9.0	24.5
38	5 40	12 00	6 54b	11 52b	9.6	11.2	7.0	15.0	1.4	9.5	.....	9.6	8.1	9.5	24.5
39	5 45	12 00	7 00b	11 54b	10.1	11.8	7.4	15.7	1.5	9.7	.....	9.8	8.4	9.8	24.5
40	6 50	1 00	8 10b	1 03a	10.1	11.8	7.4	15.7	1.5	9.7	.....	9.8	8.4	9.8	25.0
41	5 42	12 13	6 54b	12 07b	10.1	11.8	7.4	15.7	1.5	9.7	.....	9.8	8.4	9.8	25.0
42	6 55	1 10	8 07b	1 04a	10.1	11.8	7.4	15.7	1.5	9.7	.....	9.8	8.4	9.8	24.5
43	4 45	10 15	6 22b	11 09b	6.1	7.2	4.8	10.9	1.1	8.6	.....	8.6	6.0	6.9	24.5
44	2 39	8 06	1 14b	8 26b	6.8	8.0	5.5	12.3	2.5	8.9	9 43	9.3	6.5	7.4	24.5
45	2 50	8 20	6 40b	8 32b	11.4	15.7	8.6	16.8	1.8	6.3	.....	5.9	7.6	7.5	25.0
46	3 40	10 00	8 11b	10 11b	12.5	15.7	7.7	15.9	1.9	5.5	.....	6.0	8.2	8.0	25.0
47	3 30	9 48	8 00b	10 00b	11.0	14.1	7.4	14.4	1.9	5.4	.....	5.9	7.4	7.7	25.0
48	3 00	9 20	2 31b	9 31b	11.6	14.7	7.7	14.9	1.9	5.5	.....	6.0	7.7	8.0	25.0
49	3 00	9 20	2 31b	9 31b	11.5	14.7	7.7	14.9	1.9	5.5	.....	6.0	7.7	8.0	25.0
50	2 30	8 47	2 02b	8 54b	12.5	16.0	8.3	15.9	2.0	5.7	.....	6.3	8.2	8.6	25.0
51	1 55	8 10	1 25b	8 22b	11.0	14.1	7.4	14.4	1.9	5.4	.....	5.9	7.4	7.7	25.0



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			H.W.	L.W.	H.W.	L.W.	
NORTH AMERICA (WEST COAST)—Continued.											
BRITISH COLUMBIA—continued.		North.	West.				Time meridian, 120° W.		Mean Lower Low Water.		
		o	'	h. m.			h. m.	h. m.	feet.	feet.	
1	Sergeant Passage	50 42	126 11	8 25	Sitka	159	+2 02	+2 05	+1.6	-1.4	1.37
2	Farewell Harbor, Blackfish Id.	50 36	126 42	8 27	Sitka	159	+1 34	+1 36	+2.9	-1.3	1.54
3	Dusky Cove, Bonwick Island	50 42	126 40	8 27	Sitka	159	+1 27	+1 29	+2.5	-1.3	1.49
4	Sunday Harbor, Crib Island	50 44	126 42	8 27	Sitka	159	+1 19	+1 20	+2.5	-1.3	1.49
5	Cullen Harbor, Fife Sound	50 46	126 45	8 27	Sitka	159	+1 19	+1 20	+2.5	-1.3	1.49
6	Deep Harbor, Fife Sound	50 48	126 35	8 26	Sitka	159	+1 28	+1 39	+2.0	-1.4	1.42
7	Tracey Harbor, Broughton Island	50 51	126 53	8 28	Sitka	159	+1 20	+1 21	+1.6	-1.4	1.37
8	Cypress Harbor, Broughton Island	50 50	126 41	8 27	Sitka	159	+1 49	+1 50	+1.2	-1.4	1.34
9	Beaver Cove, Vancouver Island	50 38	126 52	8 27	Sitka	159	+1 29	+1 30	+0.8	-1.4	1.29
10	Alert Bay, Cormorant Island	50 35	126 57	8 28	Sitka	159	+1 15	+1 16	+0.8	-1.4	1.29
11	Nimkish River, Vancouver Island	50 34	126 50	8 28	Sitka	159	+1 20	+1 21	+0.2	-1.6	1.22
12	Beaver Harbor, Vancouver Island	50 43	127 25	8 30	Sitka	159	+0 52	+0 52	-0.2	-1.6	1.16
13	Blunden Harbor	50 54	127 19	8 29	Sitka	159	+0 51	+0 51	-0.2	-1.6	1.16
14	Port Alexander, Galiano Island	50 51	127 40	8 31	Sitka	159	+0 55	+0 55	-0.2	-1.6	1.17
15	Bull Harbor, Hope Island	50 55	127 56	8 32	Sitka	159	+0 34	+0 34	-1.0	-1.6	1.09
Vancouver Island, southwest coast.											
16	Race Rocks Light, Fuca Strait	48 18	123 32	8 14	Port Townsend	155	-1 59	-1 51	-1.9	-1.5	0.92
17	Sooke Inlet, Fuca Strait	48 21	123 43	8 15	Port Townsend	155	-2 16	-1 59	-1.6	-1.4	0.86
18	Jordan River, Fuca Strait	48 25	124 03	8 16	Port Townsend	155	-2 32	-2 12	-1.1	-1.3	1.03
19	Port San Juan, Fuca Strait	48 33	124 26	8 18	Astoria	151	+0 33	+0 16	-0.4	0.0	0.85
20	Carranah Point Light	48 37	124 46	8 19	Astoria	151	+0 09	-0 10	-0.4	0.0	0.85
21	Cape Beale Light, Barclay Sound	48 48	125 14	8 21	Astoria	151	-0 14	-0 21	+1.8	+0.2	1.27
22	Stamp Harbor	49 16	124 51	8 19	Astoria	151	+0 34	+0 42	+8.9	+0.3	1.59
23	Clayoquot Sound	49 14	126 00	8 24	Astoria	151	-0 16	-0 25	+1.8	+0.2	1.29
24	Hequiat Harbor	49 25	126 28	8 26	Astoria	151	-0 24	-0 35	+2.0	+0.2	1.32
25	Nootka Sound	49 36	126 38	8 27	Astoria	151	-0 23	-0 35	+1.6	+0.2	1.25
26	Esperanza Inlet	49 50	126 58	8 28	Astoria	151	-0 32	-0 44	+1.6	+0.2	1.24
27	Kyuquot Sound	50 00	127 12	8 29	Astoria	151	-0 36	-0 50	+1.2	+0.2	1.19
28	On-Ou-Kinsh Inlet	50 08	127 34	8 30	Astoria	151	-0 38	-0 53	+1.2	+0.2	1.19
29	Klaskino Inlet	50 18	127 52	8 31	Astoria	151	-0 48	-1 03	+0.6	0.0	1.10
30	Quatsino Sound Entrance	50 28	127 56	8 32	Astoria	151	-0 47	-1 02	+0.6	0.0	1.10
Smith Inlet.											
31	Takush Harbor	51 17	127 39	8 31	Sitka	159	-0 12	-0 12	0.0	-1.6	1.19
Fitzhugh Sound.											
32	Schooner Retreat	51 28	127 45	8 31	Sitka	159	-0 07	-0 07	-0.2	-1.6	1.16
33	Safety Cove	51 32	127 56	8 32	Sitka	159	-0 01	-0 01	+0.3	-1.5	1.23
34	Goldstream Harbor	51 43	128 01	8 32	Sitka	159	-0 11	-0 11	+0.8	-1.4	1.29
35	Namu Harbor	51 52	127 52	8 31	Sitka	159	+0 02	+0 02	+0.5	-1.5	1.25
36	Welcome Harbor, Hakai Strait	51 41	128 08	8 33	Sitka	159	-0 15	-0 15	-0.2	-1.6	1.16
Fisher Channel.											
37	Port John	52 00	127 53	8 32	Sitka	159	+0 34	+0 38	+1.4	-1.4	1.36
Campbell Island.											
38	McLaughlin Bay	52 09	128 10	8 33	Sitka	159	+0 15	+0 19	0.0	-1.6	1.19
39	Kynumpt Harbor	52 12	128 13	8 33	Sitka	159	+0 10	+0 12	+0.5	-1.5	1.25
Milbank Sound.											
40	Port Blakeney	52 19	128 23	8 34	Sitka	159	-0 14	-0 15	-0.2	-1.6	1.18
Finlayson Channel.											
41	Nowish Cove	52 31	128 27	8 34	Sitka	159	+0 06	+0 05	+0.1	-1.4	1.20
42	Klemtoo Passage	52 34	128 32	8 34	Sitka	159	+0 09	+0 08	+0.1	-1.4	1.20
Queen Charlotte Islands.											
43	Port Kuper	52 57	132 16	8 49	Sitka	159	-0 18	-0 18	-0.2	-1.6	1.16
44	Skidegate Inlet	53 13	131 59	8 48	Sitka	159	-0 11	-0 11	+0.8	-1.4	1.22
Principe Channel.											
45	Port Stephens	53 21	129 41	8 39	Sitka	159	-0 07	-0 08	+2.0	-1.4	1.42
46	Port Canaveral	53 34	130 09	8 41	Sitka	159	-0 02	-0 03	+2.0	-1.4	1.42
Wright Sound.											
47	Holmes Bay	53 16	129 05	8 36	Sitka	159	-0 12	-0 13	+0.8	-1.4	1.29
48	Coghlan Anchorage	53 23	129 17	8 37	Sitka	159	-0 11	-0 12	+2.0	-1.4	1.42

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	1 45	8 00	1 14b	8 12b	10.6	13.6	7.1	13.9	1.8	5.3	.....	5.8	7.2	7.5	25.0
2	1 15	7 29	0 46b	7 40b	11.9	15.2	8.0	15.4	2.0	5.6	.....	6.1	7.9	8.2	25.0
3	1 08	7 22	0 39b	7 38b	11.5	14.7	7.7	14.9	1.9	5.5	.....	6.0	7.7	8.0	25.0
4	1 00	7 13	0 31b	7 24b	11.5	14.7	7.7	14.9	1.9	5.5	.....	6.0	7.7	8.0	25.0
5	1 00	7 13	0 31b	7 24b	11.5	14.7	7.7	14.9	1.9	5.5	.....	6.0	7.7	8.0	25.0
6	1 20	7 38	0 50b	7 45b	11.0	14.1	7.4	14.3	1.9	5.4	.....	5.9	7.4	7.8	25.0
7	1 00	7 13	0 29b	7 25b	10.6	13.6	7.1	13.8	1.9	5.3	.....	5.8	7.2	7.6	25.0
8	1 30	7 43	0 59b	7 55b	10.3	13.2	6.9	13.5	1.8	5.2	.....	5.7	7.0	7.4	25.0
9	1 10	7 23	0 39b	7 35b	10.0	12.8	6.7	13.1	1.8	5.1	.....	5.6	6.8	7.2	25.0
10	0 56	7 08	0 24b	7 20b	10.0	12.8	6.7	13.1	1.8	5.1	.....	5.6	6.8	7.2	25.0
11	1 00	7 13	0 27b	7 26b	9.4	12.1	6.3	12.5	1.8	5.0	.....	5.5	6.4	6.9	25.0
12	0 30	6 42	— 0 03b	6 45b	9.0	11.5	6.0	12.0	1.7	4.9	.....	5.3	6.2	6.6	25.0
13	0 30	6 42	— 0 03b	6 45b	9.0	11.5	6.0	12.0	1.7	4.9	.....	5.3	6.2	6.6	25.0
14	0 32	6 44	— 0 01b	6 47b	9.1	11.6	6.1	12.1	1.7	4.9	.....	5.4	6.2	6.7	25.0
15	0 10	6 22	— 0 25b	6 36b	8.4	10.7	5.6	11.3	1.7	4.7	.....	5.2	5.8	6.2	25.0
16	1 45	7 38	3 34b	7 32b	4.8	5.8	3.7	9.1	1.0	7.6	.....	7.6	5.0	5.8	23.5
17	1 27	7 29	3 15b	7 23b	5.0	6.0	3.9	9.4	1.0	7.8	.....	7.8	5.2	6.0	23.5
18	1 10	7 15	2 54b	7 09b	5.4	6.5	4.2	10.0	1.1	8.1	.....	8.1	5.5	6.3	23.5
19	0 45	6 55	0 10b	7 12b	6.0	7.4	4.3	8.5	1.9	3.6	.....	4.1	4.3	4.6	23.5
20	0 20	6 28	— 0 15b	6 45b	6.0	7.4	4.3	8.5	1.9	3.6	.....	4.1	4.3	4.6	23.5
21	12 20	6 15	11 49a	6 30b	8.0	9.9	5.7	10.9	2.2	4.2	.....	4.7	5.5	5.9	23.5
22	0 45	7 20	0 17b	7 33b	10.0	12.4	7.1	13.2	2.4	4.6	.....	5.3	6.6	7.1	24.0
23	12 15	6 08	11 44a	6 23b	8.1	10.0	5.8	11.0	2.2	4.2	.....	4.8	5.6	5.9	24.0
24	12 05	5 56	11 35a	6 10b	8.3	10.3	5.9	11.2	2.2	4.2	.....	4.8	5.6	6.1	24.0
25	12 05	5 55	11 34a	6 10b	7.9	9.8	5.6	10.7	2.1	4.1	.....	4.7	5.4	5.9	24.5
26	11 55	5 45	11 24a	6 00b	7.8	9.7	5.5	10.6	2.1	4.1	.....	4.7	5.4	5.7	24.5
27	11 50	5 38	11 18a	5 53b	7.5	9.3	5.3	10.2	2.1	4.0	.....	4.6	5.2	5.6	24.5
28	11 47	5 34	11 15a	5 49b	7.5	9.3	5.3	10.2	2.1	4.0	.....	4.6	5.2	5.6	24.5
29	11 35	5 22	11 02a	5 38b	6.9	8.6	4.9	9.6	2.0	3.9	.....	4.4	4.8	5.2	25.0
30	11 35	5 22	11 02a	5 38b	6.9	8.6	4.9	9.6	2.0	3.9	.....	4.4	4.8	5.2	25.0
31	0 25	6 37	— 0 08b	6 50b	9.2	11.8	6.2	12.2	1.7	4.9	.....	5.4	6.3	6.7	25.5
32	0 30	6 42	— 0 03b	6 55b	9.0	11.5	6.0	12.0	1.7	4.9	.....	5.3	6.2	6.6	26.0
33	0 35	6 47	— 0 03b	7 00b	9.5	12.2	6.4	12.6	1.8	5.0	.....	5.5	6.5	6.9	26.0
34	0 25	6 37	— 0 06b	6 49b	10.0	12.8	6.7	13.1	1.8	5.1	.....	5.6	6.8	7.2	26.0
35	0 39	6 51	— 0 07b	7 04b	9.7	12.4	6.5	12.8	1.8	5.1	.....	5.5	6.6	7.0	26.0
36	0 20	6 32	— 0 13b	6 45b	9.0	11.5	6.0	12.0	1.7	4.9	.....	5.3	6.2	6.6	26.0
37	1 10	7 26	0 39b	7 38b	10.5	13.4	7.0	13.7	1.9	5.3	.....	5.8	7.1	7.5	26.0
38	0 50	7 06	0 17b	7 19b	9.2	11.8	6.2	12.2	1.7	4.9	.....	5.4	6.3	6.7	26.0
39	0 45	6 59	0 13b	7 12b	9.7	12.4	6.5	12.8	1.8	5.1	.....	5.5	6.6	7.0	26.0
40	0 20	6 31	— 0 13b	6 44b	9.1	11.6	6.1	12.1	1.7	4.9	.....	5.4	6.2	6.7	26.5
41	0 40	6 52	0 08b	7 05b	9.3	11.9	6.2	12.3	1.7	5.0	.....	5.4	6.4	6.8	26.5
42	0 43	6 55	0 11b	7 08b	9.3	11.9	6.2	12.3	1.7	5.0	.....	5.4	6.4	6.8	26.5
43	0 00	6 12	— 0 33b	6 25b	9.0	11.5	6.1	12.0	1.7	4.9	.....	5.3	6.2	6.6	26.5
44	0 07	6 19	— 0 24b	6 31b	10.0	12.8	6.7	13.1	1.8	5.1	.....	5.6	6.8	7.2	27.0
45	0 22	6 33	— 0 08b	6 45b	11.0	14.1	7.4	14.3	1.9	5.4	.....	5.9	7.4	7.8	27.0
46	0 25	6 36	— 0 05b	6 48b	11.0	14.1	7.4	14.3	1.9	5.4	.....	5.9	7.4	7.8	27.0
47	0 20	6 31	— 0 11b	6 43b	10.0	12.8	6.7	13.1	1.8	5.1	.....	5.6	6.8	7.2	27.0
48	0 20	6 30	— 0 10b	6 42b	11.0	14.1	7.4	14.3	1.9	5.4	.....	5.9	7.4	7.8	27.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
NORTH AMERICA (WEST COAST)—Continued.												
BRITISH COLUMBIA—continued.												
Greenville Channel.												
		North.	West.				Time meridian, 135° W.		Mean Lower Low Water.			
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.		
1	Lowe Inlet .....	53 33	129 36	8 38	Sitka .....	159	0 00	0 00	+3.0	-1.2	1.55	
2	Klewnugget Inlet .....	53 39	129 45	8 39	Sitka .....	159	+0 11	+0 12	+3.0	-1.2	1.55	
Ogden Channel.												
3	Alpha Bay .....	53 52	130 18	8 41	Sitka .....	159	-0 07	-0 09	+4.6	-1.2	1.75	
Chatham Sound.												
4	Refuge Bay, Porcher Island .....	54 04	130 22	8 41	Sitka .....	159	-0 12	-0 14	+2.9	-1.3	1.54	
5	Qlawdset Anchorage .....	54 13	130 46	8 43	Sitka .....	159	-0 15	-0 17	+2.4	-1.4	1.49	
6	Metlakatla Bay .....	54 20	130 28	8 42	Sitka .....	159	-0 08	-0 10	+4.8	-1.2	1.77	
7	Port Simpson .....	54 34	130 27	8 42	Sitka .....	159	-0 12	-0 13	+4.6	-1.0	1.73	
BRITISH COLUMBIA AND ALASKA.												
Portland Canal, etc.												
8	Wales Point, Alaska .....	54 42	130 28	8 42	Sitka .....	159	-0 14	-0 16	+3.8	-1.2	1.66	
9	Winter Har., Pearse Canal, Alaska .....	54 49	130 27	8 42	Sitka .....	159	-0 08	-0 16	+4.2	-1.2	1.68	
10	Somerville Bay, B. C. ....	54 47	130 13	8 41	Sitka .....	159	-0 10	-0 12	+4.4	-1.2	1.71	
11	Nass Bay, B. C. ....	54 59	129 59	8 40	Sitka .....	159	+0 13	+0 10	+9.4	-0.8	2.32	
12	Observatory Inlet, B. C. ....	55 06	129 58	8 40	Sitka .....	159	+0 16	+0 12	+9.4	-0.8	2.32	
13	Halibut Bay, Alaska .....	55 14	130 06	8 40	Sitka .....	159	+0 18	+0 14	+6.6	-1.0	1.98	
14	Fords Cove, B. C. ....	55 37	130 06	8 40	Sitka .....	159	+0 21	+0 16	+5.2	-1.2	1.81	
ALASKA.												
Dixon Entrance.												
15	Haystack Island .....	54 43	130 37	8 42	Sitka .....	159	-0 15	-0 17	+4.0	-1.2	1.67	
16	Port Tongass, Tongass Island .....	54 46	130 44	8 43	Sitka .....	159	-0 17	-0 22	+4.2	-1.2	1.70	
17	Nakat Harbor .....	54 48	130 42	8 43	Sitka .....	159	-0 13	-0 22	+4.2	-1.2	1.68	
18	Cape Fox .....	54 46	130 51	8 43	Sitka .....	159	-0 18	-0 17	+4.0	-1.2	1.67	
19	Cape Chacon, Prince of Wales Id. ....	54 42	132 01	8 48	Sitka .....	159	-0 15	-0 12	+2.0	-1.4	1.44	
20	Howkan, Kaigahnee Strait .....	54 49	132 49	8 51	Sitka .....	159	+0 09	+0 16	+3.0	-1.2	1.55	
21	Cape Muzon, Dall Island .....	54 40	132 41	8 51	Sitka .....	159	-0 14	-0 13	+1.8	-1.4	1.40	
Rerillagigedo Channel.												
22	Morse Cove, Duke Island .....	54 55	131 15	8 45	Sitka .....	159	+0 04	+0 01	+4.2	-1.2	1.68	
23	Vixen Bay, Boca de Quadra .....	55 03	130 47	8 43	Sitka .....	159	+0 10	+0 04	+3.2	-1.2	1.58	
24	Custom House Cove, Mary Island .....	55 06	131 13	8 45	Sitka .....	159	-0 01	-0 13	+4.4	-1.2	1.71	
25	Hassler Harbor, Annette Island .....	55 13	131 26	8 46	Sitka .....	159	+0 04	-0 06	+4.6	-1.2	1.74	
26	Gnat Harbor, Carroll Inlet .....	55 23	131 20	8 45	Sitka .....	159	+0 12	-0 12	+3.1	-1.3	1.57	
27	Ward Cove, Tongass Narrows .....	55 24	131 44	8 47	Sitka .....	159	+0 08	+0 05	+6.8	-1.0	2.02	
28	Ketchikan, Tongass Narrows .....	55 21	131 39	8 47	Sitka .....	159	+0 05	+0 03	+4.0	-1.2	1.67	
Behm Canal												
29	Shoalwater Pass .....	55 26	130 54	8 44	Sitka .....	159	+0 01	-0 09	+3.1	-1.3	1.57	
30	Burroughs Bay .....	56 02	131 06	8 44	Sitka .....	159	+0 04	-0 03	+4.8	-1.2	1.76	
31	Bell Arm, Bell Island .....	55 58	131 31	8 46	Sitka .....	159	+0 14	+0 06	+6.8	-1.0	2.02	
32	Convenient Cove, Hassler Island .....	55 52	131 41	8 47	Sitka .....	159	+0 12	+0 06	+2.7	-1.3	1.52	
33	Loring, Naha Bay .....	55 36	131 38	8 47	Sitka .....	159	+0 10	+0 01	+5.0	-1.2	1.79	
Clarence Strait.												
34	Cape Northumberland, Duke Id. ....	54 51	131 22	8 46	Sitka .....	159	-0 15	-0 14	+2.7	-1.3	1.52	
35	Tamgas Harbor, Annette Island .....	55 04	131 33	8 46	Sitka .....	159	-0 13	-0 16	+4.4	-1.2	1.71	
36	Niblack Anchorage, Moira Sound .....	55 04	132 07	8 48	Sitka .....	159	-0 10	-0 13	+4.6	-1.2	1.75	
37	Metlakatla, Port Chester .....	55 08	131 34	8 46	Sitka .....	159	-0 08	-0 11	+4.6	-1.2	1.74	
38	Chasima Anch., Cholmondeley Id. ....	55 16	132 03	8 48	Sitka .....	159	-0 02	-0 05	+5.0	-1.2	1.79	
39	Kasaan Bay Entrance .....	55 24	132 10	8 49	Sitka .....	159	+0 17	+0 15	+5.6	-1.0	1.87	
40	Kasaan Village, Skowl Arm .....	55 23	132 22	8 49	Sitka .....	159	+0 12	+0 11	+4.2	-1.2	1.68	
41	Karta Bay, Kasaan Bay .....	55 34	132 35	8 50	Sitka .....	159	+0 41	+0 36	+3.4	-1.2	1.61	
42	Tolstoi Bay, Prince of Wales Island .....	55 39	132 25	8 50	Sitka .....	159	+0 11	+0 09	+4.4	-1.2	1.72	
43	Union Bay, Earnest Sound .....	55 45	132 12	8 49	Sitka .....	159	+0 12	+0 11	+3.8	-1.2	1.66	
44	Dewey Anchorage, Etolin Island .....	55 55	132 22	8 49	Sitka .....	159	+0 13	+0 12	+4.8	-1.2	1.77	
45	Ratz Harbor, Prince of Wales Island .....	55 53	132 36	8 50	Sitka .....	159	+0 13	+0 12	+4.4	-1.2	1.71	
46	Steamer Bay, Etolin Island .....	56 09	132 41	8 51	Sitka .....	159	+0 09	+0 08	+4.2	-1.2	1.68	
Sumner Strait.												
47	Port McArthur, Kuiu Island .....	55 04	134 07	8 56	Sitka .....	159	-0 04	-0 03	-1.0	-1.6	1.09	
48	Shakan, Prince of Wales Island .....	55 08	133 27	8 54	Sitka .....	159	+0 01	0 00	+0.2	-1.6	1.22	
49	Port Beauliere, Kuiu Island .....	55 18	133 54	8 56	Sitka .....	159	0 00	-0 01	+1.8	-1.3	1.41	
50	Port Protection, Prince of Wales Id. ....	55 19	133 36	8 54	Sitka .....	159	0 00	-0 02	+1.2	-1.4	1.35	
51	Red Bay, Prince of Wales Island .....	55 19	133 18	8 53	Sitka .....	159	+0 03	0 00	+3.2	-1.2	1.56	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	h. m.	h. m.	h. m.	h. m.	feet.	feet.	feet.	feet.	feet.	feet.	h. m.	feet.	feet.	feet.	East. °
1	0 30	6 42	0 01b	6 53b	12.0	15.4	8.0	15.4	2.0	5.6	.....	6.2	8.0	8.4	27.5
2	0 40	6 53	0 11b	7 04b	12.0	15.4	8.0	15.4	2.0	5.6	.....	6.2	8.0	8.4	27.5
3	0 20	6 30	-0 07b	6 41b	13.5	17.3	9.1	17.2	2.1	6.0	.....	6.5	8.8	9.3	27.5
4	0 15	6 25	-0 14b	6 36b	11.9	15.3	8.0	15.3	2.0	5.6	.....	6.1	7.9	8.4	27.5
5	0 10	6 20	-0 19b	6 31b	11.5	14.7	7.7	14.8	1.9	5.5	.....	6.0	7.6	8.1	27.5
6	0 18	6 28	-0 09b	6 39b	13.7	17.5	9.2	17.4	2.1	6.0	.....	6.6	8.9	9.4	28.0
7	0 14	6 25	-0 13b	6 36b	13.4	17.2	9.0	17.0	2.1	5.9	.....	6.5	8.8	9.2	29.0
8	0 11	6 21	-0 17b	6 32b	12.8	16.4	8.6	16.3	2.0	5.8	.....	6.4	8.4	8.9	28.0
9	0 17	6 21	-0 10b	6 32b	13.0	16.6	8.7	16.6	2.1	5.9	.....	6.4	8.6	9.0	28.0
10	0 16	6 26	-0 11b	6 37b	13.2	16.9	8.8	16.8	2.1	5.9	.....	6.5	8.7	9.1	28.5
11	0 40	6 49	0 16b	6 58b	17.9	22.9	12.0	22.1	2.4	6.9	.....	7.5	11.4	12.0	28.5
12	0 43	6 51	0 19b	7 00b	17.9	22.9	12.0	22.1	2.4	6.9	.....	7.5	11.4	12.0	28.5
13	0 45	6 53	0 19b	7 03b	15.3	19.6	10.3	19.2	2.2	6.4	.....	7.0	9.9	10.4	28.5
14	0 48	6 55	0 21b	7 06b	14.0	17.9	9.4	17.7	2.1	6.1	.....	6.7	9.1	9.6	28.5
15	0 10	6 20	-0 18b	6 31b	12.9	16.5	8.6	16.5	2.0	5.9	.....	6.4	8.5	8.9	28.5
16	0 08	6 15	-0 19b	6 26b	13.1	16.8	8.8	16.7	2.1	5.9	.....	6.4	8.6	9.1	28.0
17	0 12	6 15	-0 15b	6 26b	13.0	16.6	8.7	16.6	2.1	5.9	.....	6.4	8.6	9.0	28.0
18	0 07	6 20	-0 21b	6 31b	12.9	16.5	8.6	16.5	2.0	5.9	.....	6.4	8.5	8.9	28.0
19	0 04	6 19	-0 26b	6 31b	11.1	14.2	7.4	14.4	1.9	5.4	.....	5.9	7.4	7.9	28.0
20	0 25	6 44	-0 04b	6 55b	12.0	15.4	8.0	15.4	2.0	5.6	.....	6.2	8.0	8.4	28.0
21	0 02	6 15	-0 29b	6 27b	10.8	13.8	7.2	14.1	1.9	5.4	.....	5.9	7.3	7.7	28.0
22	0 27	6 36	0 00b	6 47b	13.0	16.6	8.7	16.6	2.1	5.9	.....	6.4	8.6	9.0	28.5
23	0 35	6 41	0 08b	6 52b	12.2	15.6	8.2	15.7	2.0	5.7	.....	6.2	8.1	8.6	28.5
24	0 22	6 22	-0 05b	6 33b	13.2	16.9	8.8	16.8	2.1	5.9	.....	6.5	8.7	9.1	28.5
25	0 25	6 27	-0 02b	6 38b	13.4	17.2	9.0	17.0	2.1	6.0	.....	6.5	8.8	9.3	28.5
26	0 35	6 23	0 06b	6 44b	12.1	15.5	8.1	15.6	2.0	5.7	.....	6.2	8.0	8.5	28.5
27	0 28	6 37	0 03b	6 47b	15.6	20.0	10.5	19.5	2.3	6.4	.....	7.0	10.0	10.6	29.0
28	0 25	6 38	0 02b	6 39b	12.9	16.5	8.6	16.5	2.0	5.9	.....	6.4	8.9	9.3	29.0
29	0 25	6 27	-0 04b	6 38b	12.1	15.5	8.1	15.6	2.0	5.7	.....	6.2	8.0	8.5	29.0
30	0 28	6 33	0 01b	6 44b	13.6	17.4	9.1	17.2	2.1	6.0	.....	6.6	8.9	9.4	29.0
31	0 35	6 39	0 10b	6 49b	15.6	20.0	10.5	19.5	2.3	6.4	.....	7.0	10.0	10.6	29.0
32	0 32	6 38	0 08b	6 49b	11.7	15.0	7.8	15.1	1.9	5.6	.....	6.1	7.8	8.2	29.0
33	0 30	6 36	0 03b	6 47b	13.8	17.7	9.2	17.4	2.1	6.0	.....	6.6	9.0	9.5	29.0
34	0 06	6 19	-0 23b	6 30b	11.7	15.0	7.8	15.1	1.9	5.6	.....	6.1	7.8	8.2	28.0
35	0 08	6 17	-0 19b	6 28b	13.2	16.9	8.8	16.8	2.1	5.9	.....	6.5	8.7	9.1	28.5
36	0 09	6 18	-0 16b	6 29b	13.5	17.3	9.0	17.1	2.1	6.0	.....	6.5	8.8	9.4	28.5
37	0 13	6 22	-0 14b	6 33b	13.4	17.2	9.0	17.0	2.1	6.0	.....	6.5	8.8	9.3	28.5
38	0 17	6 26	-0 10b	6 37b	13.8	17.7	9.2	17.4	2.1	6.0	.....	6.6	9.0	9.5	28.5
39	0 25	6 35	-0 01b	6 45b	14.4	18.4	9.6	18.2	2.2	6.2	.....	6.7	9.4	9.9	28.5
40	0 30	6 41	0 03b	6 52b	13.0	16.6	8.7	16.6	2.1	5.9	.....	6.4	8.6	9.0	28.5
41	0 58	7 05	0 29b	7 16b	12.4	15.9	8.3	15.9	2.0	5.7	.....	6.3	8.2	8.7	28.5
42	0 28	6 38	0 01b	6 49b	13.8	17.0	8.9	16.9	2.1	5.9	.....	6.5	8.7	9.1	29.0
43	0 30	6 41	0 02b	6 52b	12.8	16.4	8.6	16.3	2.0	5.8	.....	6.4	8.4	8.9	29.0
44	0 31	6 42	0 04b	6 53b	13.7	17.5	9.2	17.3	2.1	6.0	.....	6.6	8.9	9.4	29.0
45	0 30	6 41	0 02b	6 52b	13.2	16.9	8.8	16.8	2.1	5.9	.....	6.5	8.7	9.1	29.0
46	0 25	6 36	-0 02b	6 47b	13.0	16.6	8.7	16.6	2.1	5.9	.....	6.4	8.6	9.0	29.0
47	0 07	6 20	-0 28b	6 34b	8.4	10.8	5.6	11.3	1.7	4.7	.....	5.2	5.8	6.2	28.0
48	0 12	6 23	-0 21b	6 36b	9.4	12.0	6.3	12.4	1.7	5.0	.....	5.5	6.4	6.9	28.0
49	0 11	6 22	-0 19b	6 34b	10.9	14.0	7.3	14.2	1.9	5.4	.....	5.9	7.3	7.7	28.0
50	0 13	6 23	-0 18b	6 35b	10.4	13.3	7.0	13.6	1.8	5.2	.....	5.7	7.0	7.2	28.5
51	0 17	6 26	-0 12b	6 37b	12.2	15.6	8.2	15.7	2.0	5.7	.....	6.2	8.1	8.6	28.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
NORTH AMERICA (West Coast)—Continued.												
ALASKA—continued.												
Sumner Strait—Continued.												
		North.	West.	A. M.			Time meridian, 155° W.		Mean Lower Low Water.			
		° / ' "	° / ' "				A. M.	A. M.	feet.	feet.		
1	Duncan Canal Entrance .....	56 32	133 05	8 52	Sitka .....	159	+0 08	+0 05	+3.6	-1.2	1.62	
2	St. John Harbor, Zarembo Island .....	56 26	132 57	8 52	Sitka .....	159	+0 07	+0 04	+4.0	-1.2	1.67	
3	Wrangell, Wrangell Island .....	56 28	132 22	8 49	Sitka .....	159	+0 12	+0 09	+5.6	-1.2	1.79	
4	Highfield Cannery .....	56 29	132 22	8 49	Sitka .....	159	+0 14	+0 11	+4.6	-1.2	1.75	
5	Stikine River Ent., Pt. Rothsay .....	56 35	132 22	8 49	Sitka .....	159	+0 25	+0 30	+2.4	-1.4	1.48	
Wrangell Strait.												
6	Point Lockwood, Woewodski Island .....	56 33	132 57	8 52	Sitka .....	159	+0 10	+0 08	+7.0	-1.6	1.71	
7	Finger Point, Lindenber Penin .....	56 41	132 56	8 52	Sitka .....	159	+0 35	+0 35	+8.4	+1.6	1.96	
8	Prolewy Point, Lindenber Penin .....	56 50	132 56	8 52	Sitka .....	159	+0 15	+0 13	+7.5	-1.5	1.77	
Keku Strait.												
9	Seclusion Harbor, Kulu Island .....	56 33	133 52	8 55	Sitka .....	159	+0 05	-0 06	+0.6	-1.4	1.27	
10	Port Camden, Kulu Island .....	56 44	133 55	8 56	Sitka .....	159	+0 06	-0 20	+2.0	-1.4	1.42	
11	Hamilton Bay, Kupreanof Island .....	56 55	133 50	8 55	Sitka .....	159	+0 03	-0 22	+1.6	-1.4	1.39	
Frederick Sound.												
12	Ideal Cove, Mitkof Island .....	56 40	132 38	8 51	Sitka .....	159	+0 27	+0 03	+3.4	-1.2	1.61	
13	Brown Cove .....	56 53	132 48	8 51	Sitka .....	159	+0 12	+0 10	+5.0	-1.2	1.79	
14	Thomas Bay .....	57 00	132 52	8 51	Sitka .....	159	+0 10	+0 07	+3.6	-1.2	1.63	
15	Portage Bay, Kupreanof Island .....	57 00	133 19	8 53	Sitka .....	159	+0 07	+0 04	+3.8	-1.2	1.65	
16	Cleveland Passage, Whitney I .....	57 13	133 30	8 54	Sitka .....	159	+0 05	+0 03	+3.8	-1.2	1.66	
17	Pybus Bay, Admiralty Island .....	57 19	134 00	8 56	Sitka .....	159	+0 06	+0 05	+3.2	-1.2	1.58	
18	Eliza Harbor, Liesenof Island .....	57 10	134 17	8 57	Sitka .....	159	+0 04	+0 03	+2.8	-1.4	1.53	
19	Saginaw Bay, Kulu Island .....	56 55	134 13	8 57	Sitka .....	159	+0 03	+0 02	+2.3	-1.3	1.46	
Stephens Passage.												
20	Port Houghton, Robert Islands .....	57 18	133 28	8 54	Sitka .....	159	+0 06	+0 03	+3.6	-1.2	1.62	
21	Hobart Bay, Entrance Island .....	57 25	133 26	8 54	Sitka .....	159	+0 07	+0 04	+3.6	-1.2	1.63	
22	Snug Cove, Gambier Bay .....	57 26	133 57	8 56	Sitka .....	159	+0 10	+0 07	+3.8	-1.2	1.66	
23	Windham Bay .....	57 33	133 30	8 54	Sitka .....	159	+0 09	+0 06	+3.6	-1.2	1.63	
24	Mole Harbor, Seymour Canal .....	57 40	134 08	8 57	Sitka .....	159	+0 15	+0 11	+3.8	-1.2	1.67	
25	Windfall Harbor, Seymour Canal .....	57 52	134 16	8 57	Sitka .....	159	+0 40	+0 35	+5.4	-1.2	1.84	
26	Holkham Bay, Harbor Island .....	57 46	133 37	8 54	Sitka .....	159	+0 11	+0 07	+3.6	-1.2	1.62	
27	Port Snettisham, Point Styleman .....	57 58	133 53	8 56	Sitka .....	159	+0 15	+0 11	+4.2	-1.2	1.70	
28	Taku Harbor .....	58 04	134 00	8 56	Sitka .....	159	+0 16	+0 12	+5.0	-1.2	1.79	
29	Taku Inlet, Greeley Point .....	58 13	134 05	8 56	Sitka .....	159	+0 19	+0 15	+5.2	-1.2	1.81	
30	Juneau, Gastineau Channel .....	58 18	134 24	8 58	Sitka .....	159	+0 36	+0 35	+5.7	-1.1	1.88	
31	Fritz Cove, Douglas Island .....	58 19	134 36	8 58	Sitka .....	159	+0 16	+0 17	+3.6	-1.2	1.63	
Lynn Canal.												
32	Funter Bay, Mansfield Peninsula .....	58 15	134 53	9 00	Sitka .....	159	+0 10	+0 13	+4.2	-1.2	1.68	
33	Barlow Cove, Mansfield Peninsula .....	58 20	134 53	9 00	Sitka .....	159	+0 13	+0 15	+4.4	-1.2	1.72	
34	William Henry Bay .....	58 43	135 14	9 01	Sitka .....	159	+0 18	+0 12	+3.6	-1.2	1.63	
35	Pyramid Harbor, Chilkat Inlet .....	59 11	135 28	9 02	Sitka .....	159	+0 23	+0 14	+4.0	-1.2	1.67	
36	Portage Cove, Chilkoot Inlet .....	59 14	135 26	9 02	Sitka .....	159	+0 25	+0 15	+5.8	-1.0	1.88	
37	Skagway .....	59 27	135 18	9 01	Sitka .....	159	+0 35	+0 25	+6.3	-1.3	1.99	
Chatham Strait.												
38	Port Conclusion, Baranof Island .....	56 16	134 31	8 58	Sitka .....	159	-0 03	-0 02	-0.8	-1.6	1.10	
39	Security Bay, Kulu Island .....	56 51	134 21	8 57	Sitka .....	159	+0 02	0 00	+2.1	-1.3	1.44	
40	Whitewater Bay, Admiralty Island .....	57 11	134 31	8 58	Sitka .....	159	+0 07	+0 04	+2.4	-1.2	1.48	
41	Killishnoo, Kootznahoo Roads .....	57 28	134 34	8 58	Sitka .....	159	+0 10	+0 06	+2.6	-1.2	1.50	
42	Favorite Bay, Kootznahoo Inlet .....	57 29	134 37	8 58	Sitka .....	159	+0 37	+0 33	+1.6	1.4	1.37	
43	Mitchell Bay, Kootznahoo Inlet .....	57 31	134 29	8 58	Sitka .....	159	+1 49	+1 54	-0.3	-1.5	1.15	
44	Freshwater Bay, Chichagof Island .....	57 51	135 01	9 00	Sitka .....	159	+0 18	+0 18	+2.9	-1.3	1.54	
Outer coast.												
45	Bucareli Bay, Suemez Island .....	55 19	133 26	8 54	Sitka .....	159	-0 09	-0 08	+6.2	+1.4	1.62	
46	Cape Ommaney, Baranof Island .....	56 10	134 32	8 58	Sitka .....	159	-0 04	-0 03	0 0	+0.1	0.99	
47	SITKA, Baranof Island .....	57 08	135 20	9 01	Sitka .....	159	0 00	0 00	0 0	0 0	1.00	
Peril Strait.												
48	Point Thatcher .....	57 23	134 51	8 59	Sitka .....	159	+0 11	+0 07	+5.0	+1.1	1.50	
49	Nismeni Cove .....	57 33	135 19	9 01	Sitka .....	159	+0 24	+0 22	+5.6	+1.3	1.55	
50	Pogibshi Anchorage .....	57 30	135 32	9 02	Sitka .....	159	+0 26	+0 26	+6.1	+1.4	1.61	
51	Bear Bay .....	57 25	135 29	9 02	Sitka .....	159	+0 17	+0 17	+3.0	+0.7	1.30	
52	SERGUS NARROWS* .....	57 24	135 38	9 03	Sitka .....	159	+0 20	+0 25	+3.0	+0.2	1.38	
53	Haley Anchorage, Fish Bay .....	57 22	135 30	9 02	Sitka .....	159	+0 12	+0 04	+0.4	+0.1	1.04	
54	Whitestone Narrows, Neva Strait .....	57 15	135 30	9 02	Sitka .....	159	+0 06	0 00	+0.3	+0.2	1.07	

\*The time of slack water at Sergus Narrows is given in Table 10 of this volume.

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW intervals.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	0 23	6 32	—0 06b	6 43b	12.5	16.0	8.4	16.0	2.0	5.8	.....	6.3	8.3	8.7	29.5
2	0 22	6 31	—0 04b	6 42b	12.9	16.5	8.6	16.5	2.0	5.9	.....	6.4	8.5	8.9	29.5
3	0 30	6 39	0 02b	6 50b	13.8	17.7	9.2	17.4	2.1	6.0	.....	6.6	9.0	9.5	29.5
4	0 32	6 41	0 06b	6 52b	13.5	17.3	9.0	17.1	2.1	6.0	.....	6.5	8.8	9.4	29.5
5	0 45	7 00	0 15b	7 12b	11.4	14.6	7.6	14.7	1.9	5.5	.....	6.0	7.6	8.1	29.5
6	0 25	6 35	—0 02b	6 46b	13.2	16.9	8.8	16.8	2.1	5.9	.....	6.5	11.7	9.1	29.5
7	0 50	7 02	0 24b	7 12b	14.5	18.6	9.7	18.8	2.2	6.2	.....	6.8	12.4	9.9	29.5
8	0 30	6 40	0 04b	6 51b	13.7	17.5	9.2	17.3	2.1	6.0	.....	6.6	11.9	9.4	29.5
9	0 17	6 18	—0 14b	6 31b	9.8	12.5	6.6	12.9	1.8	5.1	.....	5.6	6.7	7.1	29.5
10	0 16	6 03	—0 14b	6 15b	11.0	14.1	7.4	14.3	1.9	5.4	.....	5.9	7.4	7.8	29.5
11	0 15	6 02	—0 15b	6 14b	10.7	13.7	7.2	13.9	1.9	5.3	.....	5.8	7.2	7.7	29.5
12	0 43	6 31	0 15b	6 42b	12.4	15.9	8.3	15.9	2.0	5.7	.....	6.3	8.2	8.7	29.5
13	0 28	6 39	0 02b	6 49b	13.8	17.7	9.2	17.4	2.1	6.0	.....	6.6	9.0	9.5	29.5
14	0 26	6 35	—0 02b	6 46b	12.6	16.1	8.4	16.1	2.0	5.8	.....	6.3	8.3	8.8	29.5
15	0 21	6 30	—0 07b	6 41b	12.7	16.3	8.5	16.2	2.0	5.8	.....	6.3	8.4	8.9	29.5
16	0 18	6 28	—0 10b	6 39b	12.8	16.4	8.6	16.3	2.0	5.8	.....	6.4	8.4	8.9	30.0
17	0 17	6 27	—0 12b	6 38b	12.2	15.6	8.2	15.7	2.0	5.7	.....	6.2	8.1	8.6	30.0
18	0 14	6 24	—0 15b	6 35b	11.8	15.1	7.9	15.2	2.0	5.6	.....	6.1	7.8	8.3	29.5
19	0 13	6 23	—0 17b	6 35b	11.3	14.6	7.6	14.6	1.9	5.5	.....	6.0	7.6	8.0	29.5
20	0 19	6 28	—0 09b	6 39b	12.5	16.0	8.4	16.0	2.0	5.8	.....	6.3	8.3	8.7	30.0
21	0 20	6 29	—0 06b	6 40b	12.6	16.1	8.4	16.1	2.0	5.8	.....	6.3	8.3	8.8	30.0
22	0 21	6 30	—0 07b	6 41b	12.8	16.4	8.6	16.3	2.0	5.8	.....	6.4	8.4	8.9	30.0
23	0 22	6 31	—0 06b	6 42b	12.6	16.1	8.4	16.1	2.0	5.8	.....	6.3	8.3	8.8	30.0
24	0 25	6 33	—0 03b	6 44b	12.7	16.3	8.5	16.2	2.0	5.8	.....	6.3	8.4	8.9	30.5
25	0 50	6 57	0 23b	7 07b	14.2	18.2	9.5	17.9	2.1	6.1	.....	6.7	9.2	9.7	30.5
26	0 24	6 32	—0 04b	6 43b	12.5	16.0	8.4	16.0	2.0	5.8	.....	6.3	8.3	8.7	30.5
27	0 26	6 34	—0 01b	6 45b	13.1	16.8	8.8	16.7	2.1	5.9	.....	6.4	8.6	9.1	30.5
28	0 27	6 35	0 00b	6 46b	13.8	17.7	9.2	17.4	2.1	6.0	.....	6.6	9.0	9.5	30.5
29	0 30	6 38	0 03b	6 49b	14.0	17.9	9.4	17.7	2.1	6.1	.....	6.7	9.1	9.6	30.5
30	0 45	6 56	0 19b	7 06b	14.5	18.6	9.7	18.3	2.2	6.2	.....	6.8	9.4	9.9	30.5
31	0 25	6 38	—0 03b	6 49b	12.6	16.1	8.4	16.1	2.0	5.8	.....	6.3	8.3	8.8	30.5
32	0 17	6 32	—0 10b	6 43b	13.0	16.6	8.7	16.6	2.1	5.9	.....	6.4	8.6	9.0	30.5
33	0 20	6 34	—0 07b	6 45b	13.3	17.0	8.9	16.9	2.1	5.9	.....	6.5	8.7	9.1	30.5
34	0 24	6 30	—0 04b	6 41b	12.6	16.1	8.4	16.1	2.0	5.8	.....	6.3	8.3	8.8	31.0
35	0 28	6 31	0 00b	6 42b	12.9	16.5	8.6	16.5	2.0	5.9	.....	6.4	8.5	8.9	31.0
36	0 30	6 32	0 04b	6 44b	14.6	18.7	9.8	18.4	2.2	6.2	.....	6.8	9.5	10.0	31.0
37	0 40	6 42	0 14b	6 54b	15.3	19.6	10.3	19.3	2.3	6.3	.....	6.9	9.9	10.4	31.0
38	0 06	6 19	—0 28b	6 32b	8.5	10.9	5.8	11.4	1.7	4.8	.....	5.2	5.9	6.3	30.0
39	0 12	6 22	—0 18b	6 34b	11.1	14.2	7.5	14.4	1.9	5.4	.....	5.9	7.6	7.9	29.5
40	0 16	6 25	—0 14b	6 37b	11.4	14.6	7.8	14.7	1.9	5.5	.....	6.0	7.6	8.1	29.5
41	0 19	6 27	—0 11b	6 39b	11.6	14.8	7.9	15.0	1.9	5.6	.....	6.1	7.8	8.2	30.0
42	0 46	6 54	0 15b	7 06b	10.6	13.6	7.2	13.8	1.9	5.3	.....	5.8	7.2	7.6	30.0
43	1 58	6 15	1 24b	8 28b	8.9	11.4	6.1	11.9	1.7	4.9	.....	5.3	6.2	6.5	30.0
44	0 25	6 37	—0 06b	6 48b	11.9	15.2	8.1	15.3	2.0	5.6	.....	6.1	7.9	8.4	30.0
45	0 04	6 16	—0 24b	6 27b	12.5	16.0	8.5	16.0	2.0	5.8	.....	6.3	10.9	8.7	28.5
46	0 05	6 17	—0 31b	6 31b	7.6	9.7	5.2	10.3	1.6	4.5	.....	4.9	7.2	5.7	29.5
47	0 07	6 18	—0 29b	6 34b	7.7	9.9	5.2	10.5	2.1	4.5	8 02	4.9	7.4	5.8	29.6
48	0 19	6 27	—0 11b	6 39b	11.6	14.8	7.9	15.0	1.9	5.6	.....	6.1	9.7	8.2	30.0
49	0 30	6 40	0 01b	6 51b	12.0	15.4	8.2	15.4	2.0	5.6	.....	6.2	10.0	8.4	30.0
50	0 31	6 43	0 02b	6 54b	12.4	15.9	8.4	15.9	2.0	5.7	.....	6.3	10.2	8.7	29.5
51	0 22	6 34	—0 09b	6 45b	10.0	12.8	6.7	13.2	1.8	5.2	.....	5.6	8.8	7.2	29.5
52	0 25	6 41	—0 04b	6 53b	10.6	13.8	6.9	13.4	2.2	5.0	8 15	5.3	9.0	9.3	29.5
53	0 17	6 21	—0 18b	6 35b	8.0	10.2	5.4	10.8	1.6	4.6	.....	5.0	7.6	6.0	29.5
54	0 11	6 17	—0 25b	6 31b	7.8	10.0	5.3	10.5	1.6	4.5	.....	5.0	7.5	5.8	29.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (West Coast)—Continued.											
ALASKA—continued.											
Icy Strait and Cross Sound.											
		North.	West.				Time meridian, 135° W.		Mean Lower Low Water.		
		h. m.	o.	h. m.			h. m.	h. m.	feet.	feet.	
1	Swanson Harbor .....	58 13	135 07	9 00	Sitka .....	159	+0 29	+0 28	+ 3.8	-1.2	1.64
2	Hooniah, Port Frederick .....	58 07	135 26	9 02	Sitka .....	159	+0 23	+0 25	+ 3.4	-1.8	1.66
3	Inian Cove .....	58 16	136 19	9 05	Sitka .....	159	-0 22	+0 34	0.0	-1.8	1.25
4	Port Althorp .....	58 07	136 17	9 05	Sitka .....	159	-0 17	-0 15	-1.8	-1.8	1.04
5	Granite Cove .....	58 12	136 24	9 06	Sitka .....	159	+0 11	+0 13	-1.0	-2.0	1.13
Outer coast.											
6	Port Mulgrave, Yakutat Bay .....	59 34	139 46	9 19	Sitka .....	159	+0 47	+0 43	-2.0	-1.8	0.95
7	Icy Bay .....	59 55	141 18	9 25	Sitka .....	159	+0 49	+0 50	-2.1	-1.7	0.94
8	Controller Bay, Wingham Island .....	60 05	144 48	9 39	Sitka .....	159	+0 27	+0 27	-2.3	-2.3	1.00
Time meridian, 150° W.											
9	Copper R. Delta, Kokinhenic I. ....	60 18	145 03	9 40	Kadiak .....	163	-0 32	+0 12	-5.8	-1.4	0.36
10	Copper R. Delta, Pete Dahl Slough ..	60 29	145 24	9 42	Kadiak .....	163	-0 33	-0 07	+1.0	+0.2	1.12
11	Eyak River Entrance .....	60 28	145 40	9 43	Kadiak .....	163	-0 25	+0 13	-0.2	-0.2	1.00
Prince William Sound.											
12	Port Etches or Nuchek .....	60 21	146 38	9 47	Kadiak .....	163	-0 49	-0 43	+1.6	-0.4	1.30
13	Orca Inlet (Cape Whithed) .....	60 28	145 55	9 44	Kadiak .....	163	-0 38	-0 14	+3.1	+0.3	1.42
14	Point Johnstone, Hinchinbrook I. ....	60 29	146 32	9 46	Kadiak .....	163	-0 41	-0 59	+2.0	+0.2	1.28
15	Cordova Bay, Hawkins I. ....	60 32	146 00	9 44	Kadiak .....	163	-0 47	-0 46	+3.0	+0.2	1.41
16	Orca .....	60 35	145 41	9 43	Kadiak .....	163	-0 38	-0 44	+3.2	+0.2	1.43
17	Valdez Arm .....	61 07	146 27	9 46	Kadiak .....	163	-0 52	-0 52	+3.0	+0.4	1.41
18	Chalmers Harbor, Montague I. ....	60 15	147 22	9 49	Kadiak .....	163	+0 23	+0 35	+3.6	+0.2	1.45
Cook Inlet.											
19	Port Chatham .....	59 12	151 44	10 07	Kadiak .....	163	+0 57	+1 02	+2.2	+0.2	1.30
20	Seward Kachemak Bay .....	59 43	151 14	10 05	Kadiak .....	163	+0 30	+0 32	+10.1	+0.7	2.38
21	Port Kenal, Kaknu River .....	60 32	151 19	10 05	Kadiak .....	163	+2 30	+2 42	+8.6	+0.6	2.17
22	Point Possession .....	61 04	150 26	10 02	Kadiak .....	163	+4 07	+4 24	+14.6	+0.8	2.91
23	Turnagain Bay .....	60 56	149 30	9 58	Kadiak .....	163	+5 03	+5 25	+16.0	+1.0	3.19
24	Knik River .....	61 17	149 58	10 00	Kadiak .....	163	+4 40	+4 57	+14.9	+0.9	3.04
Kadiak Island.											
25	KADIAC (St. Paul Harbor, Kadiak I.) ..	57 48	152 21	10 09	Kadiak .....	163	0 00	0 00	0.0	0.0	1.00
26	Karluk River, Shellkof Strait .....	57 38	154 11	10 17	Kadiak .....	163	+0 29	+0 34	+0.2	0.0	1.04
Alaska Peninsula.											
27	Katmai Bay, Shellkof Strait .....	58 05	154 49	10 19	Kadiak .....	163	+0 31	+0 39	+0.5	0.0	1.07
28	Semidi Islands, Chowiet Island .....	56 01	156 43	10 27	Kadiak .....	163	+1 48	+1 53	-0.9	-0.1	0.90
29	Shumagin Islands, Simeonof I. ....	54 55	159 16	10 37	Kadiak .....	163	+2 33	+2 38	-1.3	-0.1	0.94
30	Zacharefskaia Bay, Unga Strait .....	55 21	160 39	10 43	Kadiak .....	163	+2 59	+3 06	-0.8	0.0	0.91
Sannak Islands.											
31	Peterson Bay .....	54 23	162 38	10 51	Kadiak .....	163	-0 45	-0 31	-2.5	+0.1	0.64
32	Acherk Harbor .....	54 29	162 48	10 51	Kadiak .....	163	-0 47	-0 25	-1.6	+0.2	0.74
Aleutian Islands.											
33	Ikatan Bay, Unimak Island .....	54 46	163 20	10 53	Kadiak .....	163	-0 24	-0 16	-2.4	+0.2	0.65
34	Tigalda Bay, Tigalda Island .....	54 07	164 59	11 00	St. Michael .....	167	-6 53	-7 35	-0.6	+0.4	0.76
35	Unalga Bay, Unalga Island .....	54 00	166 10	11 05	Galveston .....	123	+11 56	+11 32	+2.4	0.0	2.67
36	Dutch Harbor, Unalaska Island .....	53 54	166 32	11 06	Port Townsend .....	155	+0 05	+0 29	-6.0	-2.8	0.39
37	Iliuluk, Unalaska Island .....	53 53	166 32	11 06	Port Townsend .....	155	+0 04	+0 27	-5.6	-2.6	0.45
38	Kashega Bay, Unalaska Island .....	53 28	167 05	11 08	St. Michael .....	167	-7 12	-7 32	+0.2	+0.8	0.93
39	Eagle Bay, Unalaska Island .....	53 28	166 54	11 08	Port Townsend .....	155	-2 57	-2 47	-3.7	-2.3	0.75
40	Idak Cove, Unmak Island .....	53 27	167 42	11 11	St. Michael .....	167	-7 07	-6 16	-0.4	-0.2	0.93
41	Adakh Island .....	51 49	176 52	11 47	Port Townsend .....	155	+0 21	+0 49	-3.3	-2.1	0.78
42	Kiska Island .....	51 59	182 30	12 10	Port Townsend .....	155	+0 50	+1 18	-8.2	-2.0	0.80
43	Attu Island .....	52 56	186 48	12 27	Port Townsend .....	155	+1 13	+1 41	-2.6	-2.0	0.88
Bering Sea.											
44	St. Paul Island, Pribilof Islands .....	57 08	170 18	11 21	Port Townsend .....	155	+0 46	+1 18	-6.0	-2.8	0.41
45	Nushagak Bay .....	59 00	158 29	10 34	Port Townsend .....	155	-8 26	-2 39	-6.2	-3.6	0.47
46	Goodnews Bay .....	59 02	161 45	10 47	Port Townsend .....	155	+2 09	+2 49	-3.6	-2.4	0.80
47	Kuskokwim Bay .....	59 40	161 50	10 47	Port Townsend .....	155	+2 19	+2 59	+3.4	-1.4	1.98
48	Nunivak Island .....	60 04	167 15	11 09	Sitka .....	159	-4 59	-5 18	-7.4	-2.6	0.32
49	St. Matthew Island .....	60 20	172 25	11 30	Port Townsend .....	155	+1 19	+1 54	-5.6	-2.8	0.47
50	St. Lawrence Island .....	63 20	170 00	11 20	Port Townsend .....	155	+2 03	+2 33	-7.0	-3.2	0.25

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn.).	Spring (Sg.).	Neap (Np.).	Great tropic (Gc.).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	0 36	6 46	0 83b	7 08b	12.8	16.8	7.2	18.0	3.2	5.2	.....	6.1	8.4	10.2	30.5
2	0 29	6 42	0 04b	6 53b	12.8	16.5	8.4	15.5	2.3	5.1	8 16	5.5	8.2	8.4	30.0
3	12 05	6 47	11 56a	6 59b	9.6	12.6	6.3	11.3	2.4	4.0	.....	4.7	6.2	7.8	30.0
4	12 10	5 58	11 38a	6 11b	7.9	10.0	5.3	10.1	1.6	4.1	.....	4.4	5.3	5.6	30.0
5	0 13	6 26	0 50b	6 41b	8.7	11.0	5.9	11.3	2.2	4.5	.....	4.9	5.9	6.2	30.5
6	0 06	6 13	— 0 02b	6 57b	7.4	9.5	5.0	10.1	1.6	4.4	.....	4.8	5.2	5.6	30.5
7	0 30	6 42	— 0 06b	6 56b	7.3	9.4	4.9	10.0	1.6	4.4	.....	4.8	5.2	5.5	30.0
8	12 20	6 06	12 16a	7 02b	7.7	10.0	4.5	11.4	3.2	4.1	.....	5.2	5.1	5.9	29.0
9	0 14	6 42	0 04b	7 19b	2.5	3.0	1.8	3.3	1.5	0.5	11 29	1.5	1.2	1.4	28.5
10	0 11	6 45	12 04b	7 04b	7.7	9.7	5.4	10.7	2.9	4.3	8 49	4.9	5.4	5.6	28.5
11	0 18	7 04	— 0 58b	7 17b	6.9	9.3	4.1	9.7	2.5	3.0	.....	3.9	4.6	5.7	28.5
12	12 16	6 03	12 09a	6 42b	9.0	11.6	5.8	12.5	2.9	4.2	.....	5.1	5.4	6.3	28.5
13	0 04	6 36	12 00a	6 51b	9.8	12.8	6.3	12.6	2.9	4.7	8 28	5.2	6.5	6.7	28.5
14	12 24	5 49	11 54a	6 05b	8.8	11.1	5.7	11.5	2.3	4.3	.....	4.8	5.9	6.2	28.5
15	12 20	6 04	11 52a	6 19b	9.7	12.6	6.3	12.4	2.4	4.5	8 00	5.0	6.4	6.7	28.5
16	0 06	6 07	12 01a	6 24b	9.9	12.9	6.3	12.7	2.7	4.4	8 22	5.1	6.5	6.7	28.5
17	12 13	5 56	11 44a	6 13b	9.7	12.5	6.2	12.6	2.6	4.7	7 59	5.4	6.5	6.8	28.0
18	1 00	7 20	0 35b	7 38b	10.2	13.3	6.6	13.5	3.2	4.4	.....	5.5	6.7	6.9	27.5
19	1 15	7 28	0 48b	7 47b	9.0	11.7	5.8	12.1	3.0	4.1	.....	5.2	6.0	6.3	25.0
20	0 50	7 00	0 20b	7 15b	16.4	21.2	10.7	20.5	4.1	5.5	.....	7.0	10.2	10.6	25.5
21	2 50	9 10	2 29b	9 25b	15.0	19.5	9.7	19.1	3.9	5.3	.....	6.7	9.4	9.7	26.0
22	4 30	10 55	4 13b	11 08b	20.1	26.1	18.1	24.7	4.5	6.1	.....	7.7	12.2	12.5	27.0
23	5 30	12 00	5 13b	12 12b	22.0	28.6	14.3	26.8	4.7	6.4	.....	8.1	13.3	13.6	27.0
24	5 06	11 30	4 48b	11 43b	21.0	27.3	13.7	25.7	4.6	6.3	.....	7.9	12.7	13.1	27.0
25	0 17	6 23	— 0 16b	6 46b	6.9	8.9	4.5	9.7	2.7	3.6	8 54	4.5	4.8	5.0	24.0
26	0 37	6 50	0 08b	7 11b	7.2	9.4	4.7	10.0	2.7	3.7	.....	4.6	4.9	5.1	23.0
27	0 40	6 53	0 11b	7 14b	7.4	9.6	4.8	10.2	2.8	3.7	.....	4.7	5.0	5.2	23.0
28	1 45	7 58	1 13b	8 21b	6.2	8.1	4.0	8.7	2.5	3.4	.....	4.3	4.3	4.5	21.5
29	2 20	8 33	1 47b	8 57b	5.8	7.5	3.8	8.3	2.4	3.3	.....	4.2	4.1	4.3	20.5
30	2 40	8 55	2 09b	9 17b	6.3	8.2	4.1	8.8	2.5	3.4	.....	4.3	4.4	4.6	20.0
31	12 13	6 10	11 15a	6 30b	4.4	5.7	2.8	7.0	1.8	4.1	7 34	4.4	8.6	4.0	19.5
32	12 11	6 16	11 17a	6 35b	5.1	6.6	3.3	7.9	1.9	4.4	.....	4.7	4.1	4.5	19.5
33	0 07	6 23	— 0 51b	6 43b	4.5	5.9	2.9	7.1	1.8	4.1	.....	4.5	3.7	4.1	19.5
34	[2 08]	[8 04]	0 08b	8 55b	[0.9]	[1.4]	[0.2]	3.5	.....	.....	9 35	3.5	1.2	1.7	18.5
35	[3 28]	[8 56]	6 30a	9 13b	[1.3]	[1.5]	[1.0]	4.0	.....	.....	9 32	3.6	1.8	2.5	18.0
36	3 51	10 00	1 43b	10 02b	2.0	2.2	1.9	4.3	0.4	3.7	10 02	3.6	2.3	2.7	18.0
37	3 50	9 58	1 44b	10 00b	2.3	2.9	1.5	4.9	0.5	4.0	.....	3.9	2.6	3.0	18.0
38	[3 12]	[9 27]	0 23b	9 32b	[1.5]	[1.7]	[1.2]	4.3	.....	.....	9 34	3.8	1.9	2.7	17.5
39	0 47	6 42	— 0 36b	7 52b	3.8	4.5	2.9	6.8	1.1	5.0	.....	5.1	3.7	4.0	17.5
40	[11 22]	[9 37]	12 09a	10 04b	[3.7]	[4.2]	[3.2]	4.3	.....	.....	.....	4.2	1.0	2.2	17.5
41	3 25	9 38	4 53a	9 32b	4.0	5.0	2.6	7.6	2.0	5.8	.....	6.1	4.0	4.4	13.5
42	3 30	9 43	4 56a	9 37b	4.1	5.2	2.7	7.7	2.0	5.8	.....	6.1	4.1	4.5	10.5
43	3 35	9 48	4 57a	9 42b	4.5	5.7	2.9	8.3	2.1	6.1	.....	6.4	4.4	4.8	8.0
44	4 17	10 29	6 15a	10 37b	2.1	2.7	1.4	4.0	0.6	3.5	.....	3.6	2.3	2.8	16.5
45	0 53	7 20	2 40b	7 27a	2.4	3.0	1.6	4.4	0.6	3.7	.....	3.8	2.5	3.0	22.0
46	6 15	0 15	7 38a	0 21a	4.1	5.2	2.7	6.7	0.8	4.9	.....	5.0	3.7	4.5	20.5
47	6 25	0 25	7 18a	0 29a	10.1	13.0	6.8	14.2	1.3	7.7	.....	7.9	7.7	8.9	20.5
48	7 20	0 47	7 10a	0 52b	3.0	3.9	2.1	5.5	1.5	1.6	.....	2.2	2.1	2.8	19.0
49	4 40	11 00	6 27a	11 08b	2.4	3.1	1.6	4.4	0.6	3.7	.....	3.8	2.5	3.0	16.5
50	5 35	11 50	8 01a	12 01b	1.3	1.7	0.9	2.8	0.5	2.7	.....	2.8	1.6	2.0	18.0



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
NORTH AMERICA (WEST COAST)—Continued.											
ALASKA—continued.											
Norton Sound, Bering Sea.											
		North.	West.				Time meridian, 165° W.		Mean Lower Low Water.		
		° ' "	° ' "	A. M.			A. M.	A. M.	feet.	feet.	
1	Cape Dyer .....	61 49	166 05	11 04	Kodiak .....	163	- 0 44	- 0 37	- 2.4	- 0.6	0.75
2	Kripniyuk .....	62 20	165 19	11 01	Kodiak .....	163	+ 0 28	+ 0 40	- 3.9	- 0.7	0.55
3	Yukon R., Delta, Kwiklok Pass .....	62 37	164 51	10 59	Kodiak .....	163	+ 2 41	+ 4 18	- 6.8	- 1.2	0.20
4	Yukon R., Delta, Kwikpak Pass .....	63 00	164 45	10 59	Kodiak .....	163	+ 2 18	+ 3 23	- 6.2	- 1.0	0.26
5	Yukon R., Delta, Apoon Pass .....	63 05	163 32	10 54	St. Michael .....	167	- 1 18	- 1 42	+ 0.2	0.0	1.04
6	Pitmihtalik .....	63 16	162 34	10 50	St. Michael .....	167	- 1 02	- 1 01	+ 0.4	0.0	1.09
7	ST. MICHAEL .....	63 29	162 02	10 48	St. Michael .....	167	0 00	0 00	0.0	0.0	1.00
8	North Bay, Stuart Island .....	63 37	162 30	10 50	St. Michael .....	167	- 0 22	- 0 16	- 0.2	+ 0.2	0.89
9	Golofnin Bay .....	64 32	163 00	10 52	St. Michael .....	167	+ 1 20	+ 2 16	- 0.2	+ 0.2	0.93
10	Nome .....	64 30	165 26	11 02	St. Michael .....	167	+ 4 50	+ 5 06	- 1.6	+ 1.0	0.46
Bering Sea—Continued.											
11	Port Clarence .....	65 13	166 24	11 06	Kodiak .....	163	+ 5 53	+ 7 10	- 6.9	- 0.9	0.14
Arctic Ocean.											
12	Chamisso Island, Kotzebue Sound .....	66 15	161 45	10 47	Bombay .....	251	+ 6 11	- 5 29	- 5.8	- 1.0	0.45
13	Point Barrow .....	71 18	156 40	10 27	Baltimore .....	99	+ 4 35	+ 4 06	- 0.8	0.0	0.33
ASIA (EAST COAST).											
SIBERIA.											
Arctic Ocean.											
			East.				Local time.				
14	Pitlekaj .....	67 03	186 30	12 26	Baltimore .....	99	- 6 57	- 7 30	- 1.0	0.0	0.25
Bering Sea—Continued.											
15	St. Lawrence Bay .....	65 38	189 00	12 36	Batavia .....	199	+ 7 34	+ 6 43	+ 1.1	- 0.3	1.50
16	Flower Bay .....	64 22	186 38	12 27	Batavia .....	199	+ 6 56	+ 6 08	+ 1.2	- 0.4	1.57
17	Anadir Bay .....	64 43	178 20	11 53	Batavia .....	199	+ 7 30	+ 6 39	+ 6.2	- 1.4	3.75
18	Cape Oliutorsk .....	59 55	170 21	11 21	Aden .....	259	+ 10 20	+ 10 21	0.0	+ 0.4	0.91
19	Nikolski, Komandorski Ids .....	55 11	166 01	11 04	Aden .....	259	+ 7 51	+ 7 37	+ 0.4	+ 0.4	0.97
Kamchatka.											
20	Petropavlovsk, Avacha Bay .....	53 00	158 43	10 35	Aden .....	259	+ 7 52	+ 7 53	+ 0.6	+ 0.4	1.05
21	Cape Lopatka, Kuril Strait .....	60 45	156 50	10 27	Aden .....	259	+ 8 17	+ 8 16	+ 0.2	+ 0.4	0.94
Okhotsk Sea.											
22	Tigil River Entr., Kamchatka .....	58 01	158 10	10 33	Aden .....	259	- 11 59	- 11 57	+ 11.4	+ 1.4	3.78
23	Gighiga River Entrance .....	62 00	160 40	10 43	Aden .....	259	- 7 23	- 7 07	+ 12.6	+ 1.4	4.12
24	Port Alan .....	56 25	138 30	9 14	Aden .....	259	- 7 50	- 6 44	+ 3.3	+ 0.7	1.71
25	Amur River Entrance .....	52 56	141 15	9 25	Aden .....	259	- 8 41	- 8 30	+ 0.1	+ 0.3	0.94
26	North Bay, Sakhalin Island .....	54 20	142 35	9 30	Aden .....	259	- 9 06	- 9 07	- 0.1	+ 0.4	0.86
Russian Tartary.											
27	Castries Bay .....	51 26	140 52	9 23	Port Townsend .....	155	- 6 15	- 5 40	- 3.4	- 3.0	0.92
28	Dui Road, Sakhalin Island .....	50 50	142 06	9 28	Port Townsend .....	155	- 6 30	- 5 45	- 4.4	- 3.0	0.76
29	Barracouta Harbor .....	49 02	140 19	9 21	Port Townsend .....	155	- 7 10	- 6 40	- 6.5	- 3.3	0.39
30	Aniwa Bay, Sakhalin Island .....	46 29	143 18	9 33	Aden .....	259	+ 12 24	+ 13 18	- 1.6	+ 0.2	0.52
31	Olga Bay .....	43 42	135 12	9 01	Port Townsend .....	155	- 3 39	- 3 09	- 6.6	- 3.4	0.37
32	Vladivostok .....	43 07	131 54	8 48	Port Townsend .....	155	- 1 45	- 1 15	- 7.3	- 3.5	0.27
JAPAN.											
Northeast Islands.											
							Time meridian, 135° E.				
33	Shakotan .....	43 52	146 49	9 47	Aden .....	259	+ 7 10	+ 7 06	- 1.6	+ 0.2	0.52
34	Taraku Sima .....	43 38	146 20	9 45	Yokohama .....	171	- 2 20	- 2 12	- 1.7	- 0.1	0.55
35	Shuisha Sima .....	43 27	145 52	9 43	Aden .....	259	+ 7 29	+ 7 27	- 1.0	+ 0.4	0.65
Yezo Island.											
36	Soya Saki .....	45 31	141 54	9 28	Aden .....	259	- 10 24	- 10 25	+ 0.6	+ 0.6	1.03
37	Notsuke Harbor .....	43 33	145 18	9 41	Aden .....	259	+ 8 33	+ 8 34	- 0.2	+ 0.4	0.80
38	Nemoro .....	43 20	145 35	9 42	Aden .....	259	+ 7 15	+ 7 14	- 1.8	+ 0.2	0.42
39	Akkeshi .....	43 02	144 51	9 39	Aden .....	259	+ 7 26	+ 7 24	- 1.1	+ 0.3	0.62
40	Kushiro .....	43 00	144 22	9 37	Port Townsend .....	155	- 1 34	- 1 07	- 6.4	- 3.2	0.37
41	Mororan, Endermo Harbor .....	42 20	141 07	9 24	Aden .....	259	+ 7 32	+ 7 31	- 0.6	+ 0.4	0.72
42	Hakodate, Tsugar Strait .....	41 48	140 42	9 23	Aden .....	259	+ 7 41	+ 7 47	- 1.1	+ 0.3	0.61
43	Otaru, Sea of Japan .....	43 12	140 54	9 24	Port Townsend .....	155	- 1 09	- 0 42	- 8.7	- 3.9	0.08

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>A. M.</i>	<i>A. M.</i>	<i>A. M.</i>	<i>A. M.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>A. M.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	12 00	5 50	11 25a	6 15b	5.2	6.7	3.4	7.4	2.3	3.1	.....	3.9	3.8	3.8	19.5
2	0 50	7 10	0 08b	7 41b	3.8	4.9	2.5	5.8	2.0	2.7	.....	3.3	2.5	3.0	19.5
3	8 05	10 50	1 56b	11 39b	1.4	1.8	0.9	2.4	1.2	1.6	.....	2.0	0.8	1.3	20.0
4	2 42	9 55	1 43b	10 39b	1.8	2.3	1.2	3.1	1.3	1.8	.....	2.3	1.2	1.6	21.0
5	[6 50]	[1 00]	5 50b	2 30a	[1.2]	[1.0]	[1.1]	4.8	.....	.....	.....	4.6	1.4	2.1	21.5
6	[7 10]	[1 45]	6 10b	3 15a	[1.3]	[1.1]	[1.2]	5.0	.....	.....	.....	4.8	1.5	2.2	21.5
7	[8 07]	[1 27]	7 14b	4 18a	[1.4]	[1.4]	[0.9]	4.6	.....	.....	13 37	4.3	1.3	2.0	22.5
8	[7 50]	[2 30]	6 50b	4 00a	[0.9]	[1.0]	[0.8]	4.1	.....	.....	.....	1.4	1.3	1.8	22.5
9	[6 05]	[12 00]	8 30b	6 30a	[1.0]	[1.1]	[0.9]	4.3	.....	.....	.....	4.2	1.3	1.9	22.5
10	[2 05]	[8 25]	11 50b	9 10b	[1.3]	[1.5]	[0.8]	2.1	.....	.....	.....	1.8	1.0	1.1	21.5
11	6 10	1 10	5 29b	1 14b	1.0	1.1	0.9	1.5	0.8	0.8	13 46	0.8	0.9	0.9	21.0
12	5 00	11 50	4 40a	11 30a	4.0	5.0	3.0	5.5	1.0	1.8	.....	2.0	2.6	2.8	24.0
13	11 37	5 22	11 45b	4 47b	0.4	0.5	0.2	0.5	0.2	0.1	0.13	0.2	0.2	0.2	34.0
14	0 18	6 24	0 53b	5 48b	0.3	0.4	0.2	0.4	0.1	0.1	16 17	0.2	0.1	0.2	18.0
15	[6 10]	[12 10]	5 17b	14 45b	[0.8]	.....	.....	4.2	.....	.....	.....	4.0	1.3	1.9	18.5
16	[5 32]	[11 32]	4 39b	14 10b	[0.9]	.....	.....	4.4	.....	.....	.....	4.2	1.3	2.0	16.5
17	[6 05]	[12 05]	5 12b	14 40b	[2.1]	.....	.....	10.5	.....	.....	.....	10.3	3.8	5.0	12.5
18	6 00	12 15	5 00b	12 27b	3.3	4.5	1.8	4.8	0.7	2.8	.....	2.9	2.6	2.7	7.0
19	4 00	10 13	3 08b	10 25b	3.5	4.7	1.9	5.0	0.7	2.9	.....	3.0	2.8	2.9	3.5
20	8 30	9 45	2 35b	9 57b	3.8	5.1	2.1	5.4	0.7	3.0	.....	3.1	2.9	3.1	West.
21	3 55	10 08	2 58b	10 19b	3.4	4.6	1.9	4.9	0.7	2.8	.....	2.9	2.7	2.9	1.5
22	8 30	2 20	8 01b	2 26a	13.7	18.5	7.5	16.7	1.4	5.7	.....	5.9	8.8	9.2	1.5
23	0 40	7 10	0 13a	7 16a	14.8	20.0	8.1	18.0	1.4	5.9	.....	6.1	9.4	9.9	1.0 E
24	0 10	7 30	— 0 33a	7 39a	6.2	8.4	3.4	8.2	0.9	3.8	.....	4.0	4.4	4.7	9.0 W
25	11 45	5 45	10 48b	5 56a	3.4	4.6	1.9	4.9	0.7	2.8	.....	2.9	2.6	2.9	8.0 W
26	11 20	5 06	10 20b	5 21a	3.1	4.2	1.7	4.5	0.6	2.7	.....	2.8	2.5	2.7	7.5 W
27	10 45	4 40	9 55b	5 49a	4.7	6.3	2.6	6.3	0.8	3.3	.....	3.5	3.5	3.6	7.5
28	10 40	4 35	9 46b	4 46a	3.9	5.2	2.2	5.5	0.7	3.0	.....	3.1	3.0	3.2	7.0
29	9 50	3 40	8 36b	3 55a	2.0	2.7	1.1	3.2	0.5	2.2	.....	2.2	1.8	2.0	7.5
30	8 00	2 48	6 42b	3 04a	1.9	2.6	1.1	3.0	0.5	2.1	.....	2.2	1.7	1.9	6.0
31	0 55	7 10	— 0 22a	7 25a	1.9	2.5	1.1	3.0	0.5	2.1	.....	2.2	1.7	1.9	6.5
32	2 45	9 00	1 13a	9 19a	1.4	1.9	0.8	2.4	0.4	1.8	.....	1.9	1.3	1.6	6.5
33	3 34	9 46	2 16b	10 02b	1.9	2.6	1.0	3.0	0.5	2.1	10 40	2.2	1.7	1.8	4.5
34	3 31	9 44	5 09a	9 39b	1.9	2.7	0.9	3.2	0.3	2.4	9 22	2.4	1.8	1.9	4.5
35	3 48	10 00	2 32b	10 22b	2.3	3.1	1.4	4.0	0.9	2.7	11 13	2.9	2.1	2.4	4.5
36	10 30	4 18	9 29b	4 35a	3.7	4.8	2.4	5.8	1.1	3.4	.....	3.7	3.0	3.3	6.0
37	4 50	11 05	3 43b	11 24b	2.9	3.7	1.8	4.7	1.0	3.0	.....	3.2	2.5	2.7	5.0
38	3 33	9 46	— 0 29b	9 49b	1.5	2.1	0.5	2.6	0.3	2.5	9 47	2.5	1.6	1.6	4.5
39	3 41	9 53	2 18b	10 00b	2.2	3.0	1.4	3.6	0.4	2.6	10 14	2.7	2.0	2.2	5.0
40	3 39	9 51	1 52b	9 54b	1.9	2.6	1.1	3.3	0.3	2.7	9 53	2.7	1.9	2.1	5.0
41	3 32	9 45	2 13b	9 56b	2.6	3.5	1.5	4.1	0.5	2.9	10 20	3.0	2.3	2.5	5.5
42	3 40	10 00	2 15b	10 11b	2.2	3.0	1.2	3.6	0.4	2.7	.....	2.7	2.0	2.2	5.5
43	3 50	10 02	1 42a	10 10a	0.4	0.5	0.3	0.8	0.1	0.7	22 38	0.7	0.4	0.5	6.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
ASIA (EAST COAST)—Continued.											
JAPAN—continued.											
Nipon Island.											
		North.	East.				Time meridian, 135° E.		Mean Lower Low Water.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Moura.....	40 57	140 52	9 23	Nagasaki.....	175	- 4 57	- 5 01	-5.6	-0.8	0.21
2	Ominato.....	41 15	141 09	9 25	Singapore.....	195	+ 5 10	+ 5 16	-5.2	-1.0	0.26
3	Yamada Harbor.....	39 27	141 59	9 28	Yokohama.....	171	- 1 03	- 0 58	-1.1	-0.1	0.71
4	Tateyama.....	34 59	139 51	9 19	Yokohama.....	171	- 0 20	- 0 12	-0.8	0.0	0.77
5	YOKOHAMA (Nishihatoba).....	35 27	139 39	9 19	Yokohama.....	171	0 00	0 00	0.0	0.0	1.00
6	Yenoura.....	35 08	138 54	9 16	Karachi.....	255	+ 7 37	+ 7 41	-2.7	-0.1	0.54
7	Shimidzu.....	35 01	138 31	9 14	Karachi.....	255	+ 7 39	+ 7 42	-2.8	0.0	0.52
8	Sakushima.....	34 44	137 02	9 08	Yokohama.....	171	+ 0 52	+ 1 00	+0.6	+0.2	1.44
9	Yokkaichi.....	34 57	136 38	9 07	Karachi.....	255	+ 8 00	+ 8 03	-0.8	+0.2	0.85
10	Toba.....	34 29	136 50	9 07	Karachi.....	255	+ 7 54	+ 7 58	-1.8	0.0	0.67
11	Matoya.....	34 22	136 52	9 07	Karachi.....	255	+ 7 47	+ 7 50	-2.4	0.0	0.57
12	Hamashima.....	34 18	136 45	9 07	Karachi.....	255	+ 8 18	+ 8 21	-2.2	0.0	0.63
13	Osaka Roads, Inland Sea.....	34 39	135 27	9 02	Karachi.....	255	+ 9 30	+ 9 41	-2.0	0.0	0.63
14	Shimotsui, Inland Sea.....	34 26	133 48	8 55	Bombay.....	251	+12 14	+12 19	-3.0	-0.6	0.73
15	Tomo, Inland Sea.....	34 23	133 22	8 53	Bombay.....	251	+12 14	+12 20	-1.7	-0.5	0.87
16	Onomichi, Inland Sea.....	34 24	133 12	8 53	Bombay.....	251	+12 02	+12 07	-1.9	-0.5	0.85
17	Simonoeki.....	33 59	130 53	8 44	Nagasaki.....	175	+ 0 36	+ 0 34	-1.8	-0.4	0.76
18	Setozaki, Sea of Japan.....	34 24	131 12	8 45	Key West.....	119	+ 2 15	+ 2 14	+0.4	+0.2	1.21
19	Hagi, Sea of Japan.....	34 25	131 24	8 46	Hongkong.....	191	+ 1 41	+ 1 56	-2.9	-0.9	0.38
20	Yesaki, Sea of Japan.....	34 39	131 39	8 47	Hongkong.....	191	+ 2 07	+ 2 21	-3.2	-0.8	0.25
21	Tonoura, Sea of Japan.....	34 54	132 04	8 48	Hongkong.....	191	+ 2 39	+ 2 53	-3.6	-0.8	0.19
22	Sagura, Sea of Japan.....	35 26	132 41	8 51	Hongkong.....	191	+ 4 03	+ 4 18	-3.7	-0.9	0.15
23	Yonago, Sea of Japan.....	35 22	133 18	8 53	Port Townsend.....	155	-12 01	-11 34	-8.7	-3.9	0.08
24	Shibayama, Sea of Japan.....	35 39	134 39	8 59	San Francisco Ent.....	147	-10 17	- 9 53	-4.2	-1.1	0.13
25	Tsuyama, Sea of Japan.....	35 39	134 50	8 59	Aden.....	259	- 5 31	- 5 32	-3.4	-0.4	0.14
26	Tsuruga Bay, Sea of Japan.....	35 43	136 00	9 04	Aden.....	259	- 5 34	- 5 36	-3.4	-0.4	0.14
27	As, Sea of Japan.....	36 53	136 59	9 08	Aden.....	259	- 5 22	- 5 24	-3.4	-0.4	0.14
28	Naoyedzu, Sea of Japan.....	37 11	138 14	9 13	Aden.....	259	- 5 25	- 5 27	-3.6	-0.4	0.12
29	Amaze, Sea of Japan.....	37 32	138 41	9 15	Aden.....	259	- 5 40	- 5 41	-3.6	-0.4	0.12
30	Funakawa, Sea of Japan.....	39 54	139 51	9 19	St. Michael.....	167	+ 4 58	+ 4 44	-2.8	+1.0	0.24
Shikoku Island.											
31	Urado.....	33 30	133 35	8 54	Bombay.....	251	+ 7 21	+ 7 26	-6.3	-0.9	0.39
32	Susaki, Nomi Harbor.....	33 23	133 17	8 53	Karachi.....	255	+ 8 04	+ 8 08	-2.0	0.0	0.66
33	Uwajima.....	33 13	132 33	8 50	Karachi.....	255	+ 9 29	+ 9 48	-1.6	0.0	0.70
34	Aoshima, Inland Sea.....	33 44	132 29	8 50	Nagasaki.....	175	+ 0 38	+ 0 33	+0.2	-0.2	1.06
Kyushu Island.											
35	Kakaji, Inland Sea.....	33 40	131 31	8 46	Bombay.....	251	+10 00	+10 05	-2.6	-0.6	0.77
36	Tasman Bay.....	31 22	131 09	8 45	Karachi.....	255	+ 8 02	+ 8 06	-0.4	+0.2	0.90
37	Yamagawa.....	31 13	130 38	8 43	Karachi.....	255	+ 9 39	+ 9 43	+1.8	+0.4	1.26
38	Kagoshima.....	31 35	130 34	8 42	Karachi.....	255	+ 9 01	+ 9 37	+2.6	+0.4	1.41
39	Kabashima.....	32 34	129 47	8 39	Shanghai.....	183	- 0 01	- 1 40	-1.4	-0.2	0.55
40	NAGASAKI.....	32 45	129 52	8 39	Nagasaki.....	175	0 00	0 00	0.0	0.0	1.00
41	Matsushima.....	32 56	129 36	8 38	Nagasaki.....	175	+ 0 08	+ 0 03	+0.1	+0.1	1.00
42	Tawaranoura.....	33 07	129 40	8 39	Nagasaki.....	175	+ 0 18	+ 0 18	-0.1	+0.1	0.98
43	Fukushima, Korea Strait.....	33 21	129 49	8 39	Nagasaki.....	175	+ 0 58	+ 0 53	-1.1	-0.1	0.83
44	Kariya, Korea Strait.....	33 28	129 50	8 39	Singapore.....	195	+11 46	+11 51	-1.6	-0.6	0.81
Tsushima Island.											
45	Hirugaura, Korea Strait.....	34 19	129 16	8 37	Nagasaki.....	175	+ 1 09	+ 1 05	-1.9	-0.5	0.78
Riu Kiu or Loo Choo Islands.											
46	Hancock Bay, Amami Ou Sima.....	28 17	129 10	8 37	Singapore.....	195	+ 9 55	+ 9 58	-1.6	-0.6	0.81
47	Nafa Kiang, Okinawa Sima.....	26 12	127 40	8 31	Singapore.....	195	+ 9 01	+ 9 04	-1.8	-0.6	0.75
Miyako Sima Islands.											
48	Miyako Sima.....	24 48	125 18	8 21	Singapore.....	195	+10 08	+10 13	-2.6	-0.6	0.63
Formosa.											
Local time.											
49	Kelung Harbor.....	25 08	121 46	8 07	San Diego.....	143	-12 05	-12 05	-2.0	-0.4	0.58
50	Sauo Bay.....	24 46	121 50	8 07	San Diego.....	143	+ 8 30	+ 8 30	+0.2	-0.2	1.13
51	Takau Harbor.....	22 30	120 16	8 01	San Diego.....	143	-12 03	-12 02	-1.2	-0.4	0.79
52	Anping.....	23 00	120 09	8 01	San Diego.....	143	-12 08	-12 08	-0.5	-0.3	0.94
53	Tamsui Harbor.....	25 10	121 25	8 06	Singapore.....	195	+12 03	+12 08	-0.2	-0.4	1.04

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above place of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn.)	Spring (Sg.)	Neap (Np.)	Great tropic (Gc.)	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	3 37	9 50	4 07a	9 50b	1.3	1.8	0.6	1.4	0.1	0.5	9 45	0.5	0.8	0.8	5.5
2	3 35	9 48	3 04b	9 51b	1.5	2.0	0.8	1.7	0.1	0.7	10 14	0.7	1.0	1.0	5.5
3	4 30	10 45	5 44a	10 40b	2.5	3.4	1.3	3.7	0.8	2.6	-----	2.6	2.1	2.3	4.5
4	5 04	11 17	6 16a	11 12b	2.7	3.7	1.4	4.0	0.3	2.7	10 50	2.7	2.3	2.4	4.0
5	5 24	11 29	4 26b	11 32b	3.5	4.8	1.9	4.9	0.4	2.9	11 39	2.9	2.8	3.0	4.0
6	5 52	12 05	6 41a	11 57b	3.0	4.2	1.5	4.0	0.4	2.1	11 13	2.2	2.2	2.3	4.0
7	5 52	12 04	6 44a	11 56b	2.9	3.9	1.6	3.9	0.4	2.2	11 13	2.3	2.2	2.3	4.0
8	6 06	12 19	7 07a	12 07b	3.9	5.4	2.0	5.6	0.8	3.4	11 19	3.6	3.1	3.3	4.5
9	6 06	12 17	6 44a	12 13b	4.7	6.4	2.6	5.8	0.4	2.7	11 44	2.7	3.3	3.4	4.5
10	5 59	12 12	6 47a	12 06b	3.7	5.0	2.1	4.9	0.4	2.6	11 32	2.7	2.7	2.9	4.5
11	5 52	12 04	6 44a	12 01b	3.2	4.3	1.7	4.2	0.3	2.4	11 42	2.4	2.4	2.5	4.5
12	6 23	0 10	7 24a	0 25a	3.5	4.7	2.0	4.7	0.5	2.5	11 40	2.5	2.5	2.8	4.5
13	7 30	1 25	8 30a	1 40a	3.5	4.7	2.0	4.7	0.5	2.5	-----	2.5	2.6	2.7	4.5
14	11 18	5 05	11 46a	5 42a	6.4	8.4	3.9	8.6	2.4	3.0	14 40	3.9	4.2	4.4	4.5
15	11 16	5 04	11 42a	4 44a	7.6	10.2	4.5	9.7	2.4	3.2	14 44	4.0	4.9	5.0	4.5
16	11 04	4 51	11 31a	4 35a	7.4	9.7	4.7	9.5	2.1	3.3	14 53	3.9	4.8	5.0	4.5
17	8 30	2 20	8 50b	2 18a	4.7	6.7	2.4	5.0	0.6	1.4	-----	1.5	2.9	2.7	4.5
18	10 55	4 42	10 29b	5 40a	1.5	2.0	0.7	2.2	1.2	0.6	21 16	1.4	0.9	1.0	4.5
19	11 16	5 03	10 43b	6 03a	1.3	1.7	0.6	2.0	1.2	0.7	21 20	1.4	0.8	0.9	4.5
20	11 41	5 28	10 57b	6 46a	0.8	1.1	0.5	1.6	1.0	0.6	21 41	1.2	0.7	0.7	4.5
21	12 12	5 59	11 41b	7 21a	0.6	0.8	0.4	1.2	0.8	0.3	22 45	0.9	0.5	0.5	4.5
22	1 08	7 21	0 29a	8 21a	0.5	0.6	0.3	0.9	0.5	0.3	23 19	0.6	0.4	0.4	5.0
23	4 51	11 03	3 02a	11 24a	0.4	0.4	0.2	0.7	0.1	0.6	24 15	0.6	0.4	0.4	5.0
24	2 07	8 20	0 42a	8 45a	0.5	0.6	0.4	0.9	0.2	0.6	21 57	0.7	0.5	0.5	5.0
25	2 28	8 41	0 51a	8 59a	0.5	0.6	0.4	0.9	0.2	0.7	21 53	0.7	0.5	0.5	5.0
26	2 30	8 42	0 52a	8 59a	0.5	0.6	0.4	0.9	0.2	0.7	-----	0.7	0.5	0.5	5.0
27	2 46	8 58	1 11a	9 23a	0.5	0.6	0.4	1.0	0.2	0.8	22 28	0.8	0.5	0.6	5.0
28	2 48	9 00	1 14a	9 28a	0.4	0.6	0.3	0.8	0.2	0.6	22 38	0.7	0.4	0.5	5.0
29	2 36	8 49	1 10a	9 15a	0.4	0.6	0.3	0.8	0.2	0.6	22 28	0.6	0.4	0.5	5.0
30	[3 07]	[9 19]	0 36a	9 51a	[0.5]	[0.7]	[0.4]	1.1	-----	-----	22 42	1.0	0.6	0.7	5.0
31	6 24	0 11	6 59a	0 10a	3.4	4.5	2.1	4.7	1.3	2.0	10 14	2.4	2.4	2.5	4.5
32	5 55	12 08	6 42a	12 05b	3.6	5.0	2.0	4.7	0.8	2.5	11 46	2.5	2.6	2.8	4.5
33	7 17	1 20	8 04a	1 17a	3.9	5.3	2.2	5.0	0.8	2.6	-----	2.6	2.8	2.9	4.5
34	8 38	2 25	9 00a	2 15a	6.6	8.9	3.8	7.6	1.2	2.2	12 52	2.5	4.0	4.0	4.5
35	8 55	2 42	9 24a	2 30a	6.7	9.2	3.7	8.2	1.3	3.1	13 22	3.4	4.4	4.5	4.5
36	5 45	11 58	6 25a	11 56b	5.0	6.8	2.8	6.3	0.4	2.9	-----	2.9	3.5	3.7	4.5
37	7 20	1 08	7 54a	1 06a	7.0	9.5	3.9	8.5	0.5	3.4	-----	3.4	4.7	4.9	3.5
38	6 40	1 00	7 12a	0 58a	7.8	10.5	4.4	9.4	0.5	3.6	-----	3.6	5.1	5.3	3.5
39	0 05	6 17	0 08b	5 45a	6.2	8.4	3.5	7.3	2.9	0.4	12 54	3.0	3.2	3.0	4.0
40	7 49	1 41	8 21a	1 37a	6.2	8.4	3.4	7.3	0.4	3.0	13 26	3.0	4.1	4.2	4.0
41	7 56	1 44	8 27a	1 37a	6.2	8.6	3.2	7.2	0.7	2.9	13 04	3.0	4.1	4.1	4.0
42	8 07	1 54	8 40a	1 48a	6.1	8.5	3.0	7.0	0.6	2.9	13 22	3.0	4.0	4.0	4.0
43	8 47	2 34	8 17b	2 36a	5.2	7.0	2.8	5.9	0.3	2.3	15 09	2.3	3.4	3.4	4.0
44	9 23	3 10	8 51b	3 18a	4.6	6.4	2.5	5.4	0.6	2.2	16 27	2.3	3.0	3.1	4.0
45	8 56	2 44	9 15a	2 37a	4.8	6.7	2.4	5.1	0.6	1.3	13 30	1.4	2.8	2.7	4.5
46	7 30	1 15	7 00b	1 29a	4.6	6.2	2.6	5.8	1.0	2.2	-----	2.4	3.0	3.1	3.0
47	6 30	0 15	6 00b	0 29a	4.3	5.8	2.5	5.4	1.0	2.1	-----	2.3	2.9	3.0	2.0
48	7 27	1 14	6 58b	1 30a	3.6	4.9	2.1	4.7	0.9	2.0	15 17	2.2	2.5	2.6	2.0
49	10 15	4 03	9 31b	4 23a	2.2	3.0	1.3	3.0	0.7	1.5	-----	1.7	1.7	1.7	1.5
50	6 00	12 13	5 26b	12 29b	4.3	5.8	2.5	5.4	1.0	2.1	-----	2.3	2.9	3.0	1.0
51	9 45	3 32	9 07b	3 49a	3.0	4.0	1.7	3.9	0.8	1.8	-----	2.0	2.1	2.2	0.5
52	9 50	3 38	9 15b	3 54a	3.6	4.9	2.1	4.6	0.9	1.9	-----	2.2	2.5	2.5	0.5
53	10 00	3 47	9 33b	3 59a	5.9	8.0	3.4	7.2	1.2	2.5	-----	2.8	3.8	3.9	1.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
ASIA (EAST COAST)—Continued.											
KOREA.		North.	East.				Local time.		Mean Lower Low Water.		
		°	°	h. m.			h. m.	h. m.	feet.	feet.	
1	Yung-hing Bay.....	39 13	127 18	8 29	San Diego.....	143	- 4 46	- 4 47	- 2.5	- 0.5	0.47
2	Tsau-liang-hai or Chosan.....	35 07	129 03	8 36	San Diego.....	143	+10 05	+10 05	+ 1.2	- 0.2	1.36
3	Port Hamilton.....	34 01	127 17	8 29	Calcutta.....	239	- 4 39	- 6 53	- 1.2	- 0.8	0.96
4	Chemulpo (Inner Harbor).....	37 29	126 36	8 26	Calcutta.....	239	- 9 25	-11 39	+12.4	- 0.6	.64
5	Seoul.....	37 30	127 00	8 28	Calcutta.....	239	+ 8 01	+ 6 10	- 4.2	- 0.8	0.59
CHINA.											
6	Port Arthur.....	38 50	121 16	8 05	Tientsin Entrance.....	179	- 5 16	- 5 54	- 0.8	0.0	0.89
7	Niuchwang or Newchwang.....	40 35	122 00	8 08	Tientsin Entrance.....	179	+ 1 34	+ 1 03	+ 3.2	+ 0.4	1.40
8	TIENTSIN ENTR., Taku Light Ship.....	38 55	117 52	7 51	Tientsin Entrance.....	179	0 00	0 00	0.0	0.0	1.00
9	Tientsin.....	39 09	117 11	7 49	Tientsin Entrance.....	179	+ 3 54	+ 3 38	- 3.8	- 0.4	0.53
10	Hoangho or Yellow River Entr.....	37 54	118 34	7 54	Tientsin Entrance.....	179	+ 1 04	+ 0 26	+ 2.0	+ 0.2	1.24
11	Chifu.....	37 34	121 31	8 06	Tientsin Entrance.....	179	- 4 56	- 5 34	- 0.2	0.0	0.96
12	Wei-hai-Wei.....	37 29	122 13	8 09	Tientsin Entrance.....	179	- 6 02	- 6 40	+ 0.6	+ 0.2	1.07
13	Shantung Promontory.....	37 24	122 42	8 11	Tientsin Entrance.....	179	+ 1 03	+ 0 24	- 1.5	- 0.1	0.81
14	Sang-kau Bay.....	37 08	122 27	8 10	Shanghai.....	183	+ 0 32	- 1 09	- 2.6	- 0.6	0.74
15	Kyau-chau Harbor.....	36 00	120 20	8 01	Shanghai.....	183	+ 4 37	+ 2 57	- 0.8	- 0.8	1.22
16	SHANGHAI, Wusung Bar.....	31 21	121 30	8 06	Shanghai.....	183	0 00	0 00	0.0	0.0	1.00
17	Nanking, Yangtze River.....	32 10	118 55	7 56	Shanghai.....	183	- 1 48	- 3 28	- 4.9	- 0.7	0.42
18	Hang Chu Bay.....	30 14	120 14	8 01	Shanghai.....	183	- 1 03	- 2 43	- 3.3	- 0.1	1.47
19	Hong-Po, Yung River.....	29 57	121 47	8 07	Shanghai.....	183	+ 0 47	- 0 54	- 1.1	- 0.7	0.95
20	Taichow Islands.....	28 24	121 52	8 07	Amoy.....	187	- 3 40	- 3 36	- 1.2	0.0	0.91
21	Namquam or Nam Kwan Harbor.....	27 12	120 23	8 02	Amoy.....	187	- 2 40	- 2 35	+ 1.4	+ 0.2	1.10
22	Min River Entrance.....	26 02	119 40	7 59	Amoy.....	187	- 2 45	- 2 40	+ 2.9	+ 0.1	1.22
23	Fuchau or Foo-chow, Min River.....	26 03	119 24	7 58	Amoy.....	187	+ 0 25	+ 0 47	+ 3.2	+ 0.2	1.24
24	Hungwha Sound.....	25 24	119 14	7 57	Amoy.....	187	- 1 15	- 1 11	+ 6.4	+ 0.2	1.45
25	Melchen Sound.....	25 06	119 00	7 56	Amoy.....	187	+ 0 15	+ 0 19	+ 1.1	+ 0.1	1.08
26	Hui-i-tau Bay.....	24 36	118 26	7 54	Amoy.....	187	0 00	+ 0 04	+ 0.5	+ 0.1	1.03
27	AMOY (Inner Harbor).....	24 28	118 03	7 52	Amoy.....	187	0 00	0 00	0.0	0.0	1.00
28	Tongsang Harbor.....	23 54	117 31	7 50	Amoy.....	187	- 1 10	- 1 05	- 3.1	- 0.1	0.77
29	Swatow.....	23 20	116 40	7 47	Hongkong.....	191	- 7 30	+ 3 43	0.0	+ 0.2	0.91
30	Honghai Bay.....	22 50	115 11	7 41	Hongkong.....	191	+ 0 27	+ 0 41	+ 1.7	+ 0.1	1.48
31	HONGKONG.....	22 17	114 10	7 37	Hongkong.....	191	0 00	0 00	0.	0.0	1.00
32	Whampoa.....	23 05	113 26	7 34	Hongkong.....	191	+ 3 50	+ 4 38	+ 1.2	- 0.4	1.45
33	Canton.....	23 08	113 16	7 33	Hongkong.....	191	+ 5 02	+ 5 04	- 0.3	- 0.9	1.18
34	Macao.....	22 14	113 34	7 34	Hongkong.....	191	+ 0 27	+ 0 42	+ 1.6	+ 0.2	1.45
35	Hui-ling-san Harbor.....	21 40	111 46	7 27	Hongkong.....	191	- 1 03	- 0 49	+ 2.6	+ 0.2	1.69
36	Tien pak Harbor.....	21 28	111 13	7 25	Hongkong.....	191	+ 2 27	+ 2 41	+ 3.2	+ 0.2	1.57
37	Nauchau Passage.....	21 00	110 38	7 23	Hongkong.....	191	+ 0 47	+ 1 01	+ 6.4	+ 0.6	2.75
38	Hoi Hau, Hainan Island.....	20 04	110 05	7 20	Hongkong.....	191	- 2 22	- 2 07	+ 3.1	+ 0.3	1.54
39	Yulinkan Bay, Hainan Island.....	18 15	109 33	7 18	Hongkong.....	191	- 0 27	- 0 12	- 1.8	- 0.4	0.54
40	Pakhoi.....	21 27	109 02	7 16	Hongkong.....	191	+ 8 03	+ 8 17	+ 7.8	+ 0.6	3.20
COCHIN CHINA.											
41	Kua Kam.....	20 45	106 47	7 07	Hongkong.....	191	- 0 22	- 0 07	- 0.1	- 0.1	1.00
42	Hue River Entrance.....	16 35	107 40	7 11	Hongkong.....	191	+ 0 08	+ 0 20	- 1.8	- 0.4	0.57
43	Hon Kohe Bay.....	12 40	109 11	7 17	Singapore.....	195	-11 26	-11 20	- 2.2	- 0.2	0.65
44	Saigon.....	10 50	106 42	7 07	Singapore.....	195	- 5 20	5 07	+ 1.8	+ 0.2	1.25
SIAM.											
45	Chentabun River Entrance.....	12 28	102 07	6 48	Singapore.....	195	- 0 20	- 0 12	- 2.5	- 0.3	0.60
46	Paknam, Menam River.....	13 30	100 38	6 43	Singapore.....	195	- 5 10	- 5 02	+ 0.6	0.0	1.07
47	Bangkok, Menam River.....	13 40	100 32	6 42	Singapore.....	195	- 2 20	- 2 02	- 0.2	0.0	0.95
MALAY PENINSULA.											
East coast.											
48	Lakon Roads.....	8 33	100 05	6 40	Singapore.....	195	- 0 15	- 0 09	- 2.6	- 0.2	0.56
49	Singora.....	7 13	100 40	6 43	Singapore.....	195	- 2 00	- 1 54	- 4.0	- 0.6	0.37
50	Tringano River.....	5 25	103 06	6 52	Singapore.....	195	- 2 20	- 2 14	- 1.4	- 0.2	0.75
51	SINGAPORE.....	1 17	103 51	6 55	Singapore.....	195	0 00	0 00	0.0	0.0	1.00
West coast.											
52	Malakka Road.....	2 12	102 12	6 49	Singapore.....	195	- 3 00	- 2 54	+ 2.4	+ 0.2	1.37
53	One Fathom Bank.....	2 52	100 59	6 44	Singapore.....	195	- 4 30	- 4 27	+ 5.6	+ 0.4	1.88
54	Perak River Entrance.....	4 05	100 44	6 43	Singapore.....	195	- 7 15	- 7 10	+ 0.9	+ 0.1	1.12
55	Georgetown, Penang Island.....	5 24	100 20	6 41	Singapore.....	195	-10 55	-10 47	+ 1.0	+ 0.2	1.14
56	Salang or Junkseylon Island.....	8 00	98 21	6 33	Singapore.....	195	+12 06	+12 24	+ 1.1	+ 0.1	1.16

Number.	Interval.				Range of tide.				Tropic diurnal inequality		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	5 10	11 22	4 23a	11 44b	1.8	2.5	1.0	2.6	0.7	1.4	.....	1.5	1.4	1.4	5.0
2	7 35	1 23	7 07b	1 86a	5.2	7.0	3.0	6.4	1.1	2.3	.....	2.6	3.4	3.5	4.5
3	9 05	2 52	9 12b	2 40a	7.7	10.5	4.2	7.2	1.4	0.7	.....	1.6	4.1	3.5	4.5
4	4 19	10 31	4 23b	10 24b	21.1	28.8	11.6	20.3	2.3	1.2	18 30	2.6	11.0	9.9	5.0
5	9 20	3 30	9 28a	3 15b	4.7	6.5	2.6	4.3	1.1	0.6	.....	1.2	2.6	2.0	5.0
6	10 05	3 58	9 26a	3 56b	6.5	7.5	5.5	8.8	0.2	4.4	.....	4.4	4.8	5.4	4.0
7	4 30	10 50	3 59b	10 52b	10.2	11.7	8.7	13.1	0.3	5.5	.....	5.5	7.0	7.7	4.5
8	2 56	9 47	2 20b	9 49b	7.3	8.4	6.2	9.8	0.2	4.6	9 41	4.7	5.2	6.9	3.5
9	6 50	1 00	6 00b	1 01a	3.9	4.5	3.3	5.7	0.2	3.4	.....	3.4	3.1	3.6	3.5
10	4 00	10 13	3 28b	10 15b	9.1	10.5	7.7	11.8	0.3	5.2	.....	5.2	6.3	7.0	3.0
11	10 25	4 13	9 47a	4 15b	7.0	8.1	6.0	9.4	0.2	4.5	.....	4.6	5.1	5.7	4.0
12	9 20	3 08	8 46a	3 10b	7.8	9.0	6.6	10.4	0.3	4.8	.....	4.8	5.6	6.2	4.0
13	4 00	10 12	3 20a	10 14a	5.9	6.8	5.0	8.1	0.2	4.2	.....	4.2	4.4	5.0	4.0
14	0 45	6 57	0 38b	7 21b	5.4	6.9	3.6	5.8	1.9	0.6	.....	2.0	2.4	2.6	4.0
15	4 50	11 03	4 45b	11 21b	8.9	11.4	6.0	9.4	2.4	0.7	.....	2.5	4.0	4.3	3.5
16	0 13	8 06	0 11b	8 25b	7.3	9.2	4.9	7.8	2.3	1.2	12 11	2.3	4.0	3.6	2.5
17	10 50	4 38	10 41a	5 10b	3.1	4.0	2.1	3.4	1.4	0.4	.....	1.5	1.2	1.5	2.0
18	11 35	5 23	11 30a	5 40b	10.7	13.7	7.2	11.2	2.6	0.8	.....	2.8	5.6	5.2	2.0
19	1 00	7 12	0 54b	7 33b	6.9	8.8	4.6	7.3	2.1	0.7	.....	2.2	3.1	3.3	2.5
20	8 50	2 37	9 05a	2 35a	11.6	14.1	8.9	12.9	0.4	3.0	.....	2.9	6.8	7.1	2.0
21	9 50	3 38	10 04a	3 36a	14.1	17.2	10.9	15.5	0.4	3.3	.....	3.2	8.2	8.4	1.5
22	9 45	3 33	9 58a	3 31a	15.6	19.0	12.0	17.0	0.5	3.4	.....	3.4	8.9	9.2	1.0
23	0 30	7 00	0 43b	6 58a	15.8	19.3	12.2	17.3	0.5	3.5	.....	3.4	9.1	9.4	1.0
24	11 15	5 02	11 27a	5 01a	18.9	23.0	14.6	20.5	0.5	3.8	.....	3.7	10.7	11.0	1.0
25	0 20	6 32	0 34b	6 30a	13.8	16.9	10.6	15.1	0.4	3.2	.....	3.2	8.0	8.2	1.0
26	0 05	6 17	0 19b	6 15a	13.2	16.1	10.2	14.5	0.4	3.2	.....	3.1	7.7	7.9	0.5
27	0 04	6 13	0 19b	6 12a	12.8	15.6	9.8	14.0	0.5	3.1	17 59	3.1	7.4	7.6	0.5
28	11 20	5 08	11 37a	5 06a	9.8	12.0	7.6	10.9	0.4	2.7	.....	2.7	5.8	6.0	0.5
29	1 53	6 39	2 59b	6 36a	3.0	3.5	2.5	5.3	1.4	3.5	18 40	3.5	2.8	3.1	0.5
30	9 50	3 37	9 13b	4 23a	4.9	6.4	3.0	8.2	3.7	3.1	.....	5.1	3.6	4.0	0.5
31	9 23	2 56	8 31b	3 51a	3.3	4.4	2.1	6.2	3.0	2.8	18 32	4.3	2.7	3.1	0.5
32	0 48	7 34	0 17a	8 07a	4.8	6.0	3.3	7.1	3.0	2.9	22 42	3.8	3.1	3.5	0.5
33	2 00	8 00	1 19a	8 50a	3.9	5.1	2.4	6.8	3.3	2.8	.....	4.4	2.1	3.3	0.5
34	9 50	3 34	9 13b	4 24a	4.8	6.3	3.0	8.2	3.7	3.1	.....	5.0	3.6	3.9	0.5
35	8 20	2 07	7 45b	2 50a	5.6	7.4	3.5	9.2	4.0	3.4	.....	5.5	4.1	4.5	1.0
36	11 50	5 37	11 17b	6 17a	6.2	8.2	3.8	9.9	4.2	3.5	.....	5.7	4.3	4.8	1.0
37	10 10	3 57	9 42b	4 31a	9.1	12.0	5.6	13.6	5.1	4.3	.....	7.0	6.2	6.6	1.5
38	7 00	0 48	6 27b	1 29a	6.1	8.0	3.8	9.8	4.2	3.5	.....	5.7	4.4	4.8	1.5
39	8 55	2 43	7 53b	3 59a	1.8	2.3	1.1	3.8	2.3	1.9	.....	3.1	1.6	1.8	2.0
40	5 00	11 12	4 34a	11 43a	10.6	14.0	6.6	15.4	5.5	4.6	.....	7.5	6.9	7.6	1.5
41	9 00	2 48	8 14b	3 44a	3.3	4.3	2.1	6.0	3.1	2.6	.....	4.2	2.6	2.9	2.0
42	9 30	3 15	8 31b	4 27a	1.9	2.5	1.2	3.9	2.3	1.9	.....	3.1	1.6	1.8	2.5
43	11 20	5 08	10 27b	5 22a	3.7	5.0	2.2	5.2	0.9	3.0	.....	3.2	2.9	3.1	2.5
44	5 00	11 20	4 23a	11 30a	7.3	9.8	4.2	9.4	1.2	4.2	.....	4.4	5.1	5.4	2.5
45	10 00	3 50	9 06a	4 04b	3.4	4.5	2.1	4.8	0.8	2.9	.....	3.0	2.7	3.9	3.0
46	5 10	11 25	4 29a	11 36a	6.1	8.2	3.6	8.1	1.1	3.9	.....	4.1	4.4	4.6	3.0
47	8 00	2 00	7 17a	2 11b	5.4	7.3	3.1	7.2	1.1	3.6	.....	3.8	4.0	4.1	3.0
48	10 05	3 53	9 10a	4 08b	3.3	4.5	1.9	4.7	0.8	2.9	.....	3.0	2.7	2.7	3.0
49	8 20	2 08	7 10a	2 26b	2.1	2.8	1.2	3.3	0.7	2.3	.....	2.4	1.8	1.9	2.5
50	8 00	1 48	7 12a	2 01b	4.3	5.8	2.5	6.0	1.0	3.3	.....	3.4	3.3	3.5	2.5
51	10 20	4 02	9 37a	4 15b	5.7	7.4	3.5	7.6	1.1	3.8	5 14	3.9	4.1	4.4	2.0
52	7 20	1 08	6 44a	1 17b	7.8	10.5	4.5	10.0	1.3	4.4	.....	4.6	5.4	5.7	2.0
53	5 50	12 00	5 19a	12 08a	10.7	14.4	6.2	13.3	1.5	5.1	.....	5.4	7.1	7.4	2.0
54	3 05	9 17	2 26a	9 27a	6.4	8.6	3.7	8.4	1.2	4.0	.....	4.1	4.6	4.8	2.0
55	11 50	5 40	11 11b	5 50a	6.5	8.8	3.8	8.5	1.2	4.0	.....	4.2	4.7	4.9	2.5
56	10 00	4 00	9 22b	4 10a	6.6	8.9	3.8	8.6	1.2	4.0	.....	4.2	4.7	4.9	2.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of range.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
MALAY OR EASTERN ARCHIPELAGO.											
EAST INDIES.											
Malakka Strait, Sumatra.											
		North.	East.				Local time.		Mean Lower Low Water.		
		° /	° /	h. m.			h. m.	h. m.	feet.	feet.	
1	Acheh Head.....	5 33	95 18	6 21	Singapore .....	195	+12 06	+12 06	-2.0	-0.2	0.68
2	Diamond Point.....	5 16	97 30	6 30	Singapore .....	195	+10 54	+10 52	+0.9	+0.1	1.12
3	Deli River Entrance.....	3 45	98 43	6 35	Singapore .....	195	-7 31	-7 29	+0.9	0.0	1.11
4	Slak River Entrance.....	1 20	102 14	6 49	Singapore .....	195	-1 30	-1 38	+3.1	+0.3	1.47
5	Garras Light, Rhio Strait.....	0 45	104 21	6 57	Singapore .....	195	-0 40	-0 48	-0.4	0.0	0.93
Sumatra, east coast, etc.											
		South.									
6	Linga, Linga Island.....	0 14	104 34	6 58	Singapore .....	195	-4 20	-4 14	+3.2	+0.2	1.49
7	Tanjong Kalean, Banka Strait.....	1 58	105 07	7 00	Galveston .....	123	+12 27	+10 59	+7.5	-1.3	6.87
8	Nangka Island, Banka Strait.....	2 24	105 47	7 03	Galveston .....	123	+13 00	+13 14	+6.7	-1.1	6.30
9	Banka Point, Banka Strait.....	2 53	106 08	7 05	Galveston .....	123	+12 02	+12 00	+6.0	-1.0	5.60
10	Tobo Ali Bay, Banka Strait.....	3 00	106 27	7 06	Galveston .....	123	-9 34	-9 17	+7.5	-1.1	6.73
11	Clifton Shoal.....	4 54	106 03	7 04	Galveston .....	123	-8 05	-9 14	+2.4	-0.6	3.00
Sunda Strait.											
12	Java Fourth Point.....	6 04	105 53	7 04	Sitka .....	159	+6 30	+6 30	-9.1	-3.1	0.22
13	Krakatoa Island.....	6 09	105 25	7 02	Sitka .....	159	+6 09	+6 09	-8.2	-3.0	0.34
14	Kalang Bayang Harbor, Sumatra.....	5 44	105 02	7 00	Sitka .....	159	+5 29	+5 32	-9.4	-3.0	0.17
15	Java First Point.....	6 44	105 11	7 01	Sitka .....	159	+4 49	+4 49	-9.1	-3.1	0.22
Sumatra, southwest coast.											
16	Flat Cape.....	5 56	104 33	6 58	Key West.....	119	-3 12	-3 13	+0.7	+0.1	1.49
17	Benkulen.....	3 41	102 13	6 49	Key West.....	119	-3 02	-3 02	+1.7	+0.1	2.32
18	Padang.....	0 56	100 23	6 42	Key West.....	119	-3 16	-3 16	+2.7	+0.1	3.14
		North.									
19	Ayer Bangies.....	0 12	99 23	6 38	Key West.....	119	-3 22	-3 22	+0.8	0.0	1.59
20	Tapanuli Bay.....	1 35	98 50	6 35	Key West.....	119	-3 01	-3 02	+2.8	+0.2	3.25
		South.									
21	BATAVIA (Tandjong Priok).....	6 06	106 53	7 08	Batavia.....	199	0 00	0 00	0.0	0.0	1.00
22	Samarang.....	6 57	110 25	7 22	Batavia.....	199	-0 34	+2 05	+1.0	-0.2	1.43
23	Panka Point.....	6 55	112 34	7 30	Batavia.....	199	+10 25	+13 04	+1.9	-0.3	1.79
24	Arabaya, Surabaya Strait.....	6 56	112 50	7 31	Batavia.....	199	+9 55	+12 23	+2.0	-0.4	1.82
25	Sembilangan, Surabaya Strait.....	7 04	112 40	7 31	Batavia.....	199	+12 58	+9 32	+1.9	-0.3	1.79
26	Surabaya, Surabaya Strait.....	7 12	112 44	7 31	Hongkong.....	191	+2 44	+2 58	+0.6	+0.4	1.09
27	Gading, Madura Strait.....	7 11	112 54	7 32	Aden.....	259	-8 30	-8 31	+1.8	+0.8	1.25
28	Karang Kleta, Madura Strait.....	7 20	112 48	7 31	Aden.....	259	-8 36	-8 34	+1.8	+0.8	1.25
29	Pasuruan, Madura Strait.....	7 38	112 55	7 32	Aden.....	259	-8 38	-8 40	+1.6	+0.8	1.25
30	Sapodile Island, Madura Strait.....	7 05	114 16	7 37	Batavia.....	199	+12 33	+10 52	+2.4	+0.2	1.79
31	Meinderts Reef, Madura Strait.....	7 40	114 28	7 38	Batavia.....	199	+12 20	+10 27	+1.8	+0.2	1.57
32	Banjoewangi, Baly Strait.....	8 13	114 23	7 38	Sydney.....	223	-11 06	-11 08	+1.8	-0.4	1.63
33	Pangul, Java, south coast.....	8 16	111 26	7 26	Sydney.....	223	-11 51	-11 50	+0.4	-0.4	1.24
34	Tylatiap, Java, south coast.....	7 45	109 04	7 16	Sydney.....	223	+12 17	+12 18	-0.2	-0.4	1.09
35	Wynkoops Bay, Java, south coast.....	6 55	106 30	7 06	Sydney.....	223	+8 35	+8 35	+0.1	-0.3	1.13
Baly.											
36	Tebunkus Road.....	8 11	115 00	7 40	Sydney.....	223	+8 39	+8 39	+0.6	-0.4	1.27
37	Badong Bay.....	8 42	115 07	7 40	Sydney.....	223	-10 16	-10 15	+2.4	-0.4	1.53
Lombok.											
38	Ampenam Bay.....	8 35	116 04	7 44	Sydney.....	223	+11 34	+11 34	+0.4	-0.4	1.21
39	Piju Bay.....	8 49	116 31	7 46	Sydney.....	223	-9 37	-9 36	+4.0	-0.4	2.28
Sumbawa.											
40	Bima Bay.....	8 25	118 42	7 55	Sydney.....	223	-8 42	-8 42	+0.3	-0.4	1.27
41	Sapie Bay.....	8 30	119 01	7 56	Sydney.....	223	-7 52	-7 51	+3.0	-0.4	2.01
Sumba or Sundaheud Island.											
42	Palmedo Road.....	9 22	119 45	7 59	Sydney.....	223	-9 07	-9 06	+6.2	-0.4	2.96
43	Nangamesie Harbor.....	9 34	120 15	8 01	Sydney.....	223	-9 47	-9 47	+8.0	-0.4	3.46
Flores or Mangarei Island.											
44	Alligator Bay.....	8 45	119 50	7 59	Sydney.....	223	-8 47	-8 46	+0.4	-0.4	1.21
45	Adenara, Adenara Island.....	8 14	123 07	8 12	Sydney.....	223	-10 07	-10 06	+1.7	-0.3	1.60
Timor.											
46	Koepang.....	10 10	123 35	8 14	Sydney.....	223	-10 17	-10 17	+2.2	-0.4	1.78
47	Dilhi.....	8 34	125 48	8 23	Sydney.....	223	-7 58	-7 57	+0.4	-0.4	1.21
48	Cyrus Harbor, Rotti Island.....	10 51	123 05	8 12	Sydney.....	223	-9 17	-9 17	+0.2	-0.4	1.19

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °	
1	10 00	3 44	9 10b	3 57a	3.9	5.2	2.3	5.5	0.9	3.1	.....	3.2	3.0	3.2	2.0	
2	11 50	5 34	11 11b	5 45a	6.4	8.7	3.7	8.4	1.2	4.0	.....	4.2	4.6	4.8	2.0	
3	2 48	8 57	2 08a	9 07a	6.3	8.5	3.7	8.3	1.2	3.9	.....	4.1	4.5	4.7	2.0	
4	8 50	2 24	8 16a	2 33b	8.4	11.3	4.9	10.7	1.3	4.6	.....	4.8	5.8	6.1	2.0	
5	9 40	3 14	8 54a	3 26b	5.3	7.1	3.1	7.1	1.1	3.6	.....	3.8	3.9	4.1	2.0	
6	6 00	12 13	5 26a	12 22a	8.5	11.5	4.9	10.8	1.3	4.6	.....	4.8	5.8	6.1	2.0	
7	[6 25]	[0 12]	7 45a	— 3 01a	[4.1]	.....	.....	10.3	.....	.....	8 37	.....	9.9	2.7	5.1	2.0
8	[6 50]	[0 38]	8 22a	— 0 46a	[3.7]	.....	.....	9.3	.....	.....	.....	.....	8.2	3.4	4.6	2.0
9	5 42	[11 54]	7 20a	10 25b	[3.4]	.....	.....	8.4	.....	.....	8 54	.....	7.8	3.1	4.2	2.0
10	[9 05]	[2 52]	10 34a	1 31a	[4.0]	.....	.....	10.1	.....	.....	.....	.....	8.6	3.8	5.2	2.0
11	[9 50]	[3 37]	12 03a	1 36a	[1.8]	.....	.....	4.5	.....	.....	.....	.....	5.7	1.6	2.2	1.5
12	7 11	0 58	6 46b	1 09a	1.7	2.4	0.7	1.8	0.3	0.6	15 01	0.6	1.0	1.0	1.5	
13	6 50	0 37	6 25b	0 48a	2.6	3.8	1.1	2.7	0.8	0.7	.....	0.8	1.5	1.5	1.0	
14	6 10	0 00	5 42b	0 12a	1.4	2.0	0.6	1.5	0.8	0.5	.....	0.6	0.9	0.8	1.5	
15	5 30	11 42	5 07b	11 52b	1.7	2.5	0.7	1.8	0.3	0.6	.....	0.6	1.0	1.0	1.0	
16	5 40	11 52	5 38b	12 41b	1.8	2.6	0.7	2.5	1.3	0.2	.....	1.3	1.0	0.9	1.0	
17	5 50	12 03	5 48b	12 42b	2.8	4.0	1.1	3.7	1.6	0.3	.....	1.6	1.5	1.4	1.5	
18	5 35	11 48	5 34b	12 20b	3.8	5.5	1.4	4.8	1.8	0.3	.....	1.8	2.0	1.9	1.5	
19	5 29	11 42	5 27b	12 28b	1.9	2.8	0.7	2.6	1.3	0.2	17 33	1.3	1.0	1.0	1.5	
20	5 50	12 02	5 49b	12 35b	3.9	5.7	1.5	4.9	1.9	0.3	.....	1.9	2.1	2.0	2.0	
21	[12 09]	[5 56]	9 57a	7 51b	[0.5]	[0.8]	[0.1]	2.8	.....	.....	8 57	2.7	0.9	1.4	1.5	
22	[6 00]	[12 13]	9 23a	9 56b	[0.8]	.....	.....	4.0	.....	.....	9 35	3.8	1.3	2.0	1.5	
23	[4 35]	[10 48]	7 58b	8 31a	[1.0]	.....	.....	5.0	.....	.....	20 42	5.0	1.7	2.5	1.5	
24	[3 35]	[9 48]	7 28b	7 50a	[1.0]	.....	.....	5.1	.....	.....	20 07	5.1	1.7	2.5	1.5	
25	[12 09]	[5 56]	10 31b	4 59a	[1.0]	.....	.....	5.0	.....	.....	20 13	4.7	1.7	2.5	1.5	
26	12 07	5 54	10 54b	6 42a	3.6	4.9	1.7	6.5	2.6	3.8	20 35	5.0	3.2	3.4	1.5	
27	11 52	5 40	10 50b	6 07a	4.5	6.2	2.3	7.2	2.1	4.3	19 44	4.8	3.7	4.0	1.5	
28	11 46	5 33	10 49b	6 02a	4.5	6.2	2.4	7.5	2.3	4.2	19 45	4.8	3.7	4.1	1.5	
29	11 44	5 31	10 46b	6 02a	4.5	6.2	2.3	7.2	2.3	4.0	19 50	4.7	3.6	4.0	1.5	
30	[11 38]	[5 25]	10 06b	6 19a	[2.3]	[2.9]	[1.6]	5.0	.....	.....	19 58	4.2	2.2	2.7	1.5	
31	[11 17]	[5 04]	9 53b	5 54a	[2.1]	[2.6]	[1.5]	4.4	.....	.....	19 38	3.9	1.9	2.4	1.5	
32	10 00	3 45	9 45b	4 13a	5.5	7.8	2.6	6.6	2.2	1.3	19 15	2.6	2.8	3.1	1.5	
33	9 15	3 03	8 59b	3 34a	4.2	5.9	2.0	5.1	1.9	1.1	.....	2.2	2.1	2.4	1.5	
34	8 33	2 21	8 16b	2 54a	3.7	5.2	1.8	4.5	1.8	1.0	18 44	2.1	1.8	2.1	1.5	
35	4 50	11 02	4 38b	11 34b	3.8	5.3	1.8	4.7	1.8	1.1	.....	2.1	2.0	2.2	1.0	
36	4 55	11 07	4 39b	11 38b	4.3	6.0	2.1	5.2	1.9	1.1	.....	2.3	2.2	2.4	1.5	
37	10 50	4 38	10 36b	5 04a	6.2	8.7	3.0	7.3	2.3	1.3	.....	2.7	3.1	3.4	1.5	
38	7 50	1 37	7 33b	2 09a	4.1	5.8	2.0	5.0	1.9	1.1	.....	2.2	2.1	2.3	1.5	
39	11 30	5 18	11 18b	5 41a	7.7	10.9	3.7	8.9	2.6	1.5	.....	3.0	3.9	4.2	1.5	
40	0 00	6 12	— 0 17a	6 44a	4.1	5.7	2.0	5.0	1.9	1.1	.....	2.2	2.1	2.3	1.5	
41	0 50	7 03	0 37a	7 27a	6.8	9.6	3.3	8.0	2.5	1.4	.....	2.8	3.4	3.7	1.5	
42	12 00	5 48	11 49b	6 08a	10.0	14.2	4.8	11.4	3.0	1.7	.....	3.4	5.0	5.4	1.5	
43	11 20	5 07	11 10b	5 26a	11.7	16.5	5.6	13.2	3.2	1.9	.....	3.7	5.9	6.3	2.0	
44	12 20	6 08	12 03b	6 40a	4.1	5.7	2.0	5.0	1.9	1.1	.....	2.2	2.1	2.3	1.5	
45	11 00	4 48	10 46b	5 15a	5.4	7.6	2.6	6.5	2.2	1.3	.....	2.5	2.8	3.0	2.0	
46	10 50	4 37	10 36b	5 02a	6.0	8.5	2.9	7.1	2.3	1.3	.....	2.7	3.0	3.3	2.0	
47	0 45	6 58	0 28a	7 30a	4.1	5.7	2.0	5.0	1.9	1.1	.....	2.2	2.1	2.3	2.0	
48	11 50	5 37	11 33b	6 09a	3.9	5.5	1.9	4.8	1.9	1.1	.....	2.1	2.0	2.2	2.0	



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of range.	
		Latitude.	Longitude.	Name.	Page.	Time.		Height.			
			Arc.			Time.	HW.	LW.	HW.		LW.
MALAY OR EASTERN ARCHIPELAGO—Continued.											
EAST INDIES—continued.											
Gasper Strait.											
		South.	East.			Local time.		Mean Lower Low Water.			
		°	°	h. m.		h. m.	h. m.	feet.	feet.		
1	Langwas Island, Billiton Island	2 32	107 37	7 10	Batavia	199	+ 2 12	+ 0 02	+3.2	-0.6	2.36
2	Shoalwater Island	3 19	107 13	7 09	Batavia	199	+ 1 47	+ 0 19	+2.4	-0.4	2.00
Carimata Strait.											
3	Montaran Islands	2 35	108 44	7 15	Batavia	199	+ 5 35	+ 7 42	+1.8	0.4	1.75
4	Kumpul Island	2 43	110 04	7 20	Batavia	199	+ 6 25	+ 8 31	+4.0	-0.8	2.68
Borneo.											
5	Bajor, Koetei River Entrance	0 43	117 33	7 50	Galveston	123	+ 1 40	+ 2 32	+4.8	-0.8	4.67
6	Kotta Baroe Reef	3 12	116 40	7 47	Galveston	123	- 0 34	- 0 18	+4.0	+1.0	3.07
7	Jelai River Entrance	2 53	110 45	7 23	Singapore	195	+ 1 09	+ 1 15	-0.3	-0.1	0.95
8	Padang Tikar River	0 38	109 15	7 17	Singapore	195	- 3 21	- 3 16	-0.4	0.0	0.95
North.											
9	Burong Islands	0 47	108 42	7 15	Singapore	195	- 5 46	- 5 41	-0.7	-0.1	0.88
10	Po Point, Sarawak River Entrance	1 43	110 31	7 22	Singapore	195	- 6 21	- 6 16	-1.2	0.0	1.18
11	Sarawak, Sarawak River	1 32	110 21	7 22	Singapore	195	- 5 01	- 4 53	+5.2	+0.4	1.82
12	Victoria Harbor, Labuan Island	5 20	115 12	7 41	Singapore	195	+11 38	+11 44	-1.6	-0.2	0.72
13	Kudat Harbor	6 53	116 51	7 47	Manila	203	- 0 52	- 0 16	-0.4	-0.1	0.94
14	Sandakan Harbor	5 50	118 07	7 52	Manila	203	- 0 18	- 0 26	+2.0	-0.3	1.49
Celebes.											
15	Manado Bay	1 30	124 46	8 19	Port Townsend	155	+ 1 27	+ 1 57	-4.0	-2.6	0.73
16	Likupang River, Banka Strait	1 41	125 02	8 20	Port Townsend	155	+ 2 02	+ 2 30	-1.8	-2.2	1.10
South.											
17	Makassar	5 09	119 22	7 57	Port Townsend	155	+ 0 08	+ 0 38	-4.4	-2.6	0.67
18	Brill or Spectacle Reef	6 05	118 54	7 56	Port Townsend	155	- 3 59	- 3 31	-6.7	-3.1	0.31
Molucca Islands.											
19	Cajeli Bay, Bouro Island	3 19	127 04	8 28	Port Townsend	155	- 3 13	- 2 46	-4.0	-2.6	0.73
20	Ambolna Bay, Ambolna Island	3 41	128 07	8 32	Port Townsend	155	- 2 13	- 1 46	-0.8	-2.0	1.27
21	Wahai Bay, Ceram Island	2 46	129 31	8 38	Port Townsend	155	+ 1 16	+ 1 15	-5.0	-2.8	0.57
22	Banda Harbor, Banda Islands	4 33	129 53	8 40	Port Townsend	155	- 2 49	- 2 22	+0.7	-1.9	1.53
23	Dobbo Harbor, Arru Islands	5 45	134 16	8 57	Port Townsend	155	- 2 14	- 1 47	-2.5	-2.3	0.98
24	Sannana Bay, Xulla Besi Island	2 03	125 57	8 24	Port Townsend	155	- 2 33	- 2 08	+0.6	-1.8	1.57
25	Gebi, Fow Island	0 05	129 30	8 38	Port Townsend	155	+ 0 26	+ 0 53	-3.6	-2.4	0.80
North.											
26	Ternate	0 50	127 20	8 29	Port Townsend	155	+ 0 27	+ 0 52	-4.4	-2.6	0.67
27	Manganitu Bay, Sangir Island	3 30	125 28	8 22	Port Townsend	155	+ 0 17	+ 0 42	-2.4	-2.2	1.00
PHILIPPINE ISLANDS.											
Sulu Islands.											
							Time meridian, 120° East.				
28	Tataan Harbor, Tawi-tawi Island	5 13	119 56	8 00	Manila	203	- 2 33	- 3 01	+1.4	-0.4	1.40
29	Port Siasi, Siasi Island	5 32	120 51	8 03	Sydney	223	+ 9 39	+ 9 40	+4.2	+0.2	2.21
30	Maimbung, Jolo Island	5 55	121 01	8 04	Sydney	223	+ 9 49	+10 01	-0.5	-0.3	0.94
31	Jolo, Jolo Island	6 04	120 59	8 04	Sydney	223	+10 54	+11 07	-0.1	-0.3	1.06
Mindanao Island.											
32	Davao or Vergara, Gulf of Davao	7 02	125 35	8 22	Sydney	223	+ 9 25	+ 9 25	+2.7	+0.1	1.76
33	Polloc, Illana Bay	7 24	124 12	8 17	Sydney	223	+ 9 48	+ 9 47	+1.2	-0.2	1.38
34	Cherif Island, Dumanaguillas Bay	7 38	123 06	8 12	Sydney	223	+ 9 36	+ 9 39	+1.7	-0.1	1.53
35	Isabela, Basilan Island	6 42	121 58	8 08	Manila	203	- 2 15	+ 1 48	-1.6	+0.4	0.57
36	Zamboanga, Basilan Strait	6 54	122 03	8 08	Sydney	223	+10 30	+10 35	0.0	0.0	0.97
37	Port Dapitan	8 38	123 24	8 14	Sydney	223	-11 51	-11 48	0.0	-0.2	1.03
38	Surigao	9 48	125 29	8 22	Sydney	223	+11 30	+11 33	+1.3	-0.3	1.47
39	Port Caebub, Siargao Island	9 50	126 03	8 24	Sydney	223	+ 9 43	+ 9 46	+3.2	+0.2	1.85
Paragua Island.											
40	Secam Island, Balabac Strait	8 11	116 58	7 48	Manila	203	+ 1 20	+ 1 02	+0.1	-0.1	1.04
41	Ulugan Bay	10 06	118 47	7 55	Manila	203	- 0 08	- 0 26	+0.6	-0.2	1.17
42	Cavern Island	11 13	119 16	7 57	Manila	203	- 0 10	- 0 28	+0.4	0.0	1.11
43	Paly or Burren Island	10 42	119 42	7 59	Manila	203	- 0 12	- 1 00	+0.8	-0.2	1.23
44	Puerto Princesa	9 44	118 42	7 55	Manila	203	+ 1 12	- 1 16	+1.3	-0.5	1.38
Iloilo Strait.											
45	Bondulan Point, Guimaras Island	10 38	122 33	8 10	Hongkong	191	+ 1 29	+ 1 35	-0.9	-0.3	0.82
46	Iloilo, Panay Island	10 12	122 34	8 10	Hongkong	191	+ 1 32	+ 2 15	-0.2	-0.2	0.97
47	Cabugao Point, Guimaras Island	10 45	122 39	8 11	Hongkong	191	+ 1 45	+ 2 31	+1.0	+0.2	1.24

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	3 17	9 29	7 45a	7 49b	1.3			6.6			7 50	6.6	2.2	3.3	0
2	2 08	8 21	8 10a	8 10b	1.1			5.6			8 12	5.5	1.9	2.8	2.0
3	9 30	3 18	15 32a	3 08a	1.0			4.9				4.9	1.6	2.4	2.0
4	10 20	4 07	16 22a	3 57a	1.5			7.5				7.5	2.5	3.8	2.0
5	7 45	1 33	9 24b	0 58b	2.8			7.0				6.0	2.6	3.5	2.0
6	5 31	11 44	7 10b	11 09a	3.9			4.6	1.3	3.3	22 18	3.7	3.1	2.6	2.0
7	11 30	5 18	10 47b	5 29b	5.4	7.3	3.1	6.9	1.1	3.6		3.8	3.9	4.1	2.0
8	7 00	0 47	6 17b	0 59b	5.3	7.2	3.1	7.1	1.0	3.6		3.8	3.9	4.1	2.0
9	4 35	10 47	3 51b	10 59a	5.0	6.7	2.9	6.8	1.0	3.5		3.6	3.7	3.9	2.5
10	4 00	10 12	3 22b	10 22a	6.7	9.0	3.9	8.7	1.2	4.0		4.2	4.7	5.0	2.5
11	5 20	11 35	4 49b	11 43a	10.4	14.1	6.1	12.9	1.5	5.0		5.3	6.9	7.2	2.5
12	9 35	3 23	8 47b	3 36a	4.1	5.5	2.4	5.7	0.9	3.2		3.3	3.2	3.3	2.0
13	9 19	3 06	8 50b	5 44a	1.4	2.0	0.8	4.4			20 31	4.0	1.3	1.8	2.0
14	10 31	4 19	9 25b	5 35a	2.7	3.7	1.4	7.0			19 52	5.6	2.5	3.4	2.0
15	6 00	12 15	4 39b	12 24a	3.7	4.3	3.1	6.6	0.8	4.4		4.5	3.4	3.9	1.5
16	6 35	0 23	5 29b	0 30b	5.6	6.4	4.7	9.0	0.9	5.5		5.6	4.7	5.3	1.5
17	4 40	10 55	3 16b	11 04a	3.4	3.9	2.9	6.2	0.7	4.3		4.3	3.2	3.8	2.0
18	0 33	6 46	1 29b	6 59a	1.6	1.9	1.4	3.5	0.5	2.9	19 38	3.0	1.8	2.2	2.0
19	1 20	7 32	— 0 01b	7 41a	3.7	4.2	3.1	6.6	0.8	4.4		4.5	3.4	3.8	2.0
20	2 20	8 32	1 19b	8 38a	6.5	7.5	5.5	10.2	1.0	5.9		6.0	5.3	6.0	2.0
21	5 50	12 00	4 18b	12 08a	2.9	3.3	2.4	5.4	0.7	3.9		4.0	2.8	3.2	2.0
22	1 45	7 57	0 48b	8 03a	7.8	9.0	6.6	11.9	1.1	6.4		6.6	6.1	6.8	2.5
23	2 20	8 32	1 15b	8 39a	5.0	5.7	4.2	8.4	0.9	5.2		5.3	4.3	4.9	3.0
24	2 00	8 10	1 02b	8 16a	7.7	8.8	6.5	11.8	1.1	6.4		6.5	6.1	6.8	2.0
25	5 00	11 12	3 47b	11 19a	4.1	4.7	3.4	7.1	0.8	4.7		4.7	3.7	4.2	2.0
26	5 00	11 10	3 36b	11 18a	3.4	3.9	2.9	6.2	0.7	4.3		4.3	3.2	3.7	2.0
27	4 50	11 00	3 41b	11 07a	5.1	5.8	4.3	8.5	0.9	5.2		5.3	4.4	4.9	1.5
28	9 20	3 25	7 10b	3 00a	2.0	2.6	1.3	6.6				4.7	2.1	3.0	2.0
29	5 54	0 18	5 57b	0 18a	7.5	8.6	6.4	9.6	3.4	0.5		3.4	4.3	5.3	2.0
30	6 05	0 04	5 48b	10 52a	3.2	2.4	1.3	4.8	2.2	1.0	19 05	2.8	1.7	2.1	1.5
31	7 10	1 10	7 35b	3 15a	3.6	5.0	1.8	5.3	2.5	1.1		2.4	1.9	2.3	1.5
32	6 00	— 0 13	6 06b	0 49a	6.0	6.9	5.1	8.8	4.7	0.4		4.7	3.5	4.2	1.0
33	6 17	0 03	5 14b	10 48a	4.7	6.6	2.8	5.9	2.1	0.4		2.2	2.6	2.8	1.5
34	6 00	12 15	7 10b	13 45b	5.2	7.0	3.4	6.6	1.9	0.7		2.0	2.9	3.0	1.5
35	9 23	3 11	7 36b	7 57a	1.5	1.9	1.0	2.7				2.5	1.0	1.3	1.5
36	6 50	0 42	6 58b	2 06a	3.8	3.8	2.8	5.4	3.5	0.3		3.5	2.1	2.4	1.5
37	9 25	3 15	9 32a	3 31a	3.5	4.2	2.8	5.1	3.0	0.6		4.0	2.0	2.3	1.5
38	8 05	1 55	8 11b	2 03a	5.0	6.0	4.0	6.5	3.0	1.0		4.6	2.6	2.9	1.0
39	6 20	0 10	6 25b	1 10a	6.3	7.2	5.4	9.2	4.8	0.5		4.8	3.8	5.2	1.0
40	11 53	5 44	10 50b	6 50a	1.5	1.9	1.0	4.9				4.0	1.6	2.2	1.5
41	10 30	4 28	9 30b	5 30a	1.6	2.1	1.1	5.5				4.2	1.8	2.4	1.5
42	10 30	4 28	9 30b	5 30a	1.6	2.0	1.0	5.2				4.2	1.8	2.3	1.5
43	10 20	4 20	9 30b	5 00a	1.7	2.3	1.2	5.8				4.3	1.9	2.6	1.5
44	11 30	5 20	10 50b	4 40a	1.9	2.5	1.3	6.5				4.6	2.0	3.1	1.5
45	11 03	4 42	10 20b	5 52a	2.7	3.5	1.7	5.5	3.4	2.4		4.0	2.1	2.6	1.0
46	11 06	5 22	10 27b	6 26a	3.2	4.2	1.9	6.2	3.7	2.6	21 11	4.4	2.5	2.9	1.0
47	11 20	5 39	10 45b	6 36a	4.1	5.4	2.4	7.5	4.2	2.9		5.0	3.3	3.5	1.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.	Name.	Page.	Time.		Height.		
			Arc.			Time.	HW.	LW.	HW.	
MALAY OR EASTERN ARCHIPELAGO—Continued.										
PHILIPPINE ISLANDS—continued.										
Cebu, Leyte, and Samar Islands.										
		North.	East.				Time meridian 180° East.		Mean Lower Low Water.	
		°	°	h. m.			h. m.	h. m.	feet.	feet.
1	Cebu, Cebu Island.....	10 18	123 53	8 16	Sydney.....	223	- 9 43	- 9 47	+0.2	+0.2
2	Ormoc, Leyte Island.....	11 00	124 36	8 18	Sydney.....	223	- 9 40	- 9 47	+1.0	+0.8
3	Maasin, Leyte Island.....	10 08	124 50	8 19	Sydney.....	223	-10 14	-10 13	0.0	+0.4
4	Tacloban, Leyte Island.....	11 15	125 00	8 20	Sydney.....	223	+10 21	+11 06	-2.4	-0.2
5	Santa Elena, San Juanico Strait.....	11 21	124 59	8 20	Manila.....	203	- 0 42	- 0 38	-1.2	+0.1
6	Santa Rita, San Juanico Strait.....	11 26	124 57	8 20	Sydney.....	223	- 9 22	- 9 38	-0.4	+0.2
7	Catbalogan, Samar Island.....	11 46	124 53	8 20	Sydney.....	223	- 9 32	- 9 42	+0.4	+0.2
8	Calbayog, Samar Island.....	12 07	124 38	8 19	Sydney.....	223	- 9 36	- 9 42	-0.6	0.0
9	Palapag, Samar Island.....	12 38	125 00	8 20	Sydney.....	223	+10 28	+10 31	+0.9	+0.1
10	Guluan, Samar Island.....	11 01	125 43	8 23	Sydney.....	223	+10 18	+10 25	-2.1	-0.3
Mindoro Island.										
11	Mangarin.....	12 20	121 04	8 04	Manila.....	203	+ 0 14	+ 0 21	+0.6	-0.6
12	Port Galera.....	13 31	120 58	8 04	Hongkong.....	191	+ 1 32	+ 1 24	-1.4	-0.4
Lesser Islands.										
13	Bussinga, Burias Island.....	13 02	123 14	8 13	Manila.....	203	+ 2 59	+ 0 06	+0.6	-0.2
14	Romblon, Romblon Island.....	12 35	122 15	8 09	Manila.....	203	+ 0 16	+ 0 05	+0.5	+0.7
15	Halsey Harbor, Cullion Island.....	11 47	119 57	8 00	Manila.....	203	- 0 10	- 0 01	+0.2	0.0
Luzon Island.										
16	Balayán, Balayan Bay.....	13 56	120 44	8 03	Manila.....	203	- 2 42	- 0 08	0.0	-0.2
17	Mariveles, Entrance to Manila Bay.....	14 26	120 29	8 02	Manila.....	203	- 0 35	- 0 13	-0.3	+0.1
18	Corregidor I., Ent. to Manila Bay.....	14 24	120 34	8 02	Manila.....	203	- 0 31	- 0 08	-0.4	-0.2
19	MANILA, Pasig River Entrance.....	14 36	120 57	8 04	Manila.....	203	0 00	0 00	0.0	0.0
20	Olongapo, Subic Bay.....	14 50	120 16	8 01	Manila.....	203	- 0 38	- 0 10	-0.6	0.0
21	Subic, Subic Bay.....	14 54	120 13	8 01	Manila.....	203	- 0 16	+ 0 18	-0.8	0.0
22	Port Silanguin.....	14 48	120 07	8 00	Manila.....	203	- 0 56	- 0 28	-2.1	+0.3
23	Santa Cruz, Zambales.....	15 46	119 53	8 00	Manila.....	203	- 0 41	- 0 59	-2.2	+0.4
24	Bolinao, Gulf of Lingayen.....	16 24	119 56	8 00	Manila.....	203	- 1 13	- 0 32	-1.4	0.0
25	Port Sual, Gulf of Lingayen.....	16 04	120 06	8 00	Manila.....	203	- 1 07	+ 0 17	-1.1	-0.4
26	Santo Tomas, Gulf of Lingayen.....	16 16	120 24	8 02	Manila.....	203	- 1 30	+ 1 42	-1.2	+0.4
27	San Fernando, Gulf of Lingayen.....	16 37	120 18	8 01	Manila.....	203	- 1 32	+ 0 38	-1.6	+0.4
28	Port Salomague.....	17 47	120 25	8 02	Manila.....	203	- 1 26	+ 3 23	-2.0	-0.2
29	Aparrí, Cagayan River.....	18 22	121 37	8 06	Apla.....	211	- 1 00	- 0 46	+0.2	+0.2
30	Camalaningan, Cagayan River.....	18 17	121 38	8 07	Apla.....	211	- 0 46	- 0 30	+0.4	+0.2
31	Port San Pio V, Camiguin Island.....	18 50	121 50	8 07	Nagasaki.....	175	- 2 16	- 2 20	-2.7	-0.3
32	Alabat Island, Lamon Bay.....	14 08	121 52	8 07	Nagasaki.....	175	- 0 46	- 0 50	+0.1	+0.1
33	Tabaco, Tabaco Bay.....	18 22	123 44	8 15	Nagasaki.....	175	- 2 26	- 2 22	-2.8	-0.4
34	Legaspi, Gulf of Albay.....	13 09	123 45	8 15	Nagasaki.....	175	- 2 30	- 2 31	-2.4	-0.4
POLYNESIA.										
NORTH PACIFIC GROUPS.										
Bonin or Arzobispo Islands.										
35	Newport, Hillsboro Island.....	26 36	142 09	9 29	Honolulu.....	207	+ 6 59	+ 6 57	+1.1	+0.1
36	Port Lloyd, Peel Island.....	27 05	142 12	9 29	Honolulu.....	207	+ 1 39	+ 1 42	+0.9	+0.1
Ladrone or Mariana Islands.										
37	Guam or Guajan Island.....	13 26	144 39	9 39	Honolulu.....	207	+ 2 49	+ 3 02	+0.9	+0.1
38	Salpan Island.....	15 19	145 44	9 43	Honolulu.....	207	+ 2 29	+ 2 32	+0.5	+0.1
Caroline Islands.										
39	Tomil Bay, Yap or Uap Island.....	9 30	138 05	9 12	Honolulu.....	207	+ 2 45	+ 2 43	+1.6	0.0
40	Kiti Harbor, Ponapi Island.....	6 47	158 08	10 33	Honolulu.....	207	- 0 33	- 0 30	+2.4	+0.2
41	Kusale or Ualan Island.....	5 20	163 05	10 52	Honolulu.....	207	+ 1 26	+ 1 29	+1.7	+0.1
Marshall Islands.										
42	Kijajalein Island.....	8 40	167 45	11 11	Honolulu.....	207	- 0 34	- 0 31	+2.7	+0.4
43	Ebon Atoll, or Boston Island.....	4 35	163 40	11 15	Honolulu.....	207	+ 0 10	+ 0 13	+3.1	+0.5
44	Atluk Island.....	10 25	170 00	11 20	Honolulu.....	207	+ 0 15	+ 0 13	+4.3	+0.5
45	Port Rhin, Mulgrave Islands.....	6 14	171 45	11 27	Honolulu.....	207	+ 0 25	+ 0 28	+3.3	+0.5
Gilbert Islands.										
46	Apamama or Hopper Island.....	0 30	173 55	11 36	Honolulu.....	207	- 0 05	- 0 02	+3.1	+0.5
47	Apaiang or Charlotte Island.....	1 50	172 50	11 31	Honolulu.....	207	+ 0 10	+ 0 13	+3.1	+0.5
Detached islands.										
			West.							
48	Midway Islands.....	28 13	177 21	11 49	Honolulu.....	207	- 0 41	- 0 15	-0.2	+0.1
49	Howland Island.....	0 53	176 35	11 46	Honolulu.....	207	+ 3 23	+ 3 26	+4.3	+0.5
50	Palmyra Island.....	5 50	162 10	10 49	Honolulu.....	207	+ 1 37	+ 1 40	+0.2	+0.2
51	Fanning Island.....	3 50	159 20	10 37	Honolulu.....	207	+ 2 11	+ 2 14	+1.0	+0.3
52	Christmas Island.....	1 55	157 20	10 29	Honolulu.....	207	+ 0 36	+ 0 37	+1.0	+0.3

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic H.W. interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	11 35	5 18	10 54b	6 18a	3.3	4.5	1.6	5.7	3.1	2.2	21 19	3.9	2.3	2.7	1.0
2	11 40	5 20	11 00b	6 18a	3.6	4.6	2.6	5.8	3.0	2.0	.....	4.0	3.0	3.6	1.0
3	11 07	4 55	11 16b	6 29a	3.0	3.5	2.5	4.7	3.0	0.3	.....	3.0	2.3	1.9	1.0
4	6 53	1 25	7 06b	3 39a	1.3	1.5	1.1	2.6	2.2	0.2	19 44	2.2	0.8	0.9	1.0
5	[10 36]	[4 05]	9 22b	5 44a	[1.2]	[1.7]	[0.5]	3.3	.....	.....	20 08	2.8	1.1	1.6	1.0
6	12 00	5 31	11 17b	6 28a	2.9	4.0	1.2	4.8	2.4	1.9	21 28	3.2	2.0	2.3	1.0
7	11 50	5 27	11 12b	6 20a	3.6	4.8	1.9	5.7	2.9	2.1	21 25	3.7	2.4	2.7	1.0
8	11 45	5 26	11 11b	6 30a	2.7	3.9	1.1	4.5	2.6	1.5	21 50	3.1	1.8	2.0	1.0
9	7 00	0 50	7 07b	2 05a	4.2	4.8	3.6	6.6	4.0	0.4	.....	4.0	2.6	3.1	1.0
10	6 53	0 47	7 06b	3 01a	1.6	2.3	1.3	2.6	1.5	0.2	.....	2.0	0.9	0.9	1.0
11	[10 32]	[4 25]	10 01b	6 26a	[2.5]	[3.1]	[1.6]	3.6	.....	.....	.....	3.0	1.6	1.8	1.0
12	11 00	4 25	10 18b	5 49a	2.2	2.8	1.3	4.6	2.8	2.0	.....	3.5	1.8	2.4	1.0
13	[4 30]	[10 20]	0 30a	6 20a	[1.6]	[2.1]	[1.1]	5.5	.....	.....	.....	4.2	1.8	2.4	1.0
14	[11 12]	[4 39]	10 08b	6 15a	[2.7]	[3.6]	[1.5]	4.5	.....	.....	.....	3.9	2.2	2.7	1.0
15	[10 37]	[4 30]	9 33b	6 00a	[1.7]	[2.3]	[0.9]	4.8	.....	.....	20 18	4.0	1.7	2.3	1.0
16	[11 07]	[4 50]	7 04b	5 56a	[1.5]	[1.9]	[1.0]	4.9	.....	.....	.....	4.0	1.5	2.2	1.0
17	[10 19]	[3 53]	9 10b	5 50a	[1.3]	[1.7]	[0.8]	4.3	.....	.....	.....	3.8	1.5	1.9	1.0
18	[10 22]	[3 56]	9 14b	5 55a	[1.2]	[1.6]	[0.8]	4.4	.....	.....	20 50	3.9	1.4	2.0	1.0
19	[10 51]	[4 29]	9 47b	6 05a	[1.6]	[2.1]	[0.9]	4.7	.....	.....	20 30	3.9	1.6	2.2	1.0
20	[10 03]	[3 52]	9 06b	5 52a	[1.2]	[1.5]	[0.8]	4.0	.....	.....	20 13	3.5	1.3	1.8	1.0
21	[10 25]	[4 20]	9 28b	6 20a	[1.2]	[1.5]	[0.8]	4.0	.....	.....	.....	3.5	1.2	1.4	1.0
22	[9 43]	[3 33]	8 47b	5 33a	[0.8]	[0.9]	[0.7]	2.3	.....	.....	.....	1.8	0.7	1.0	1.0
23	[9 49]	[3 06]	9 02b	5 02a	[0.8]	[0.9]	[0.7]	2.2	.....	.....	20 05	1.9	0.7	0.9	0.5
24	[10 21]	[3 44]	8 30b	5 29a	[0.7]	[0.9]	[0.4]	3.2	.....	.....	20 06	3.1	0.9	1.4	0.5
25	[10 20]	[3 33]	8 36b	6 18a	[0.9]	[1.2]	[0.6]	3.9	.....	.....	20 29	3.6	0.9	1.4	0.5
26	[9 26]	[4 23]	8 15b	7 45a	[0.9]	[1.2]	[0.6]	3.0	.....	.....	.....	3.1	1.2	1.3	0.5
27	[9 40]	[3 29]	8 12b	6 40a	[0.8]	[1.0]	[0.5]	2.6	.....	.....	.....	2.9	1.0	1.2	0.5
28	[10 12]	[3 22]	8 19b	9 26a	[0.6]	[0.9]	[0.3]	2.8	.....	.....	.....	2.8	0.6	0.9	0.5
29	6 12	0 13	6 09b	0 56a	2.5	3.3	1.7	3.4	0.4	1.3	.....	1.4	1.8	1.9	0.0
30	6 27	0 30	6 25b	1 05a	2.8	3.5	2.0	3.6	0.4	1.8	.....	1.5	1.9	2.0	0.0
31	6 00	0 12	5 15b	0 03a	3.8	5.0	2.7	5.5	1.1	2.0	.....	2.2	2.6	3.1	0.5
32	7 30	1 18	6 53b	1 45a	6.2	8.1	4.3	8.3	1.4	2.5	.....	2.9	4.2	4.6	1.0
33	5 58	12 19	5 28b	0 08a	3.9	5.1	2.2	5.0	0.7	1.8	13 27	1.9	2.5	2.6	1.0
34	5 54	12 10	5 38b	0 00a	4.2	5.4	2.9	5.6	0.8	1.8	.....	2.0	2.7	3.0	1.0
35	11 30	5 15	11 39a	4 18a	2.2	2.8	1.6	3.6	2.0	0.4	.....	2.0	2.4	1.4	West. 1.0
36	6 10	0 00	6 20a	1 08a	1.9	2.4	1.4	3.1	1.9	0.4	.....	1.9	2.1	1.2	1.0
37	7 20	1 20	7 30a	0 22a	2.0	2.6	1.5	3.6	3.0	0.5	.....	3.1	2.4	1.5	East. 2.0
38	7 00	0 50	7 11a	0 17a	1.6	2.0	1.1	2.6	1.7	0.3	.....	1.7	1.8	1.0	2.0
39	7 15	1 00	7 24a	0 06a	2.7	3.4	1.9	4.0	2.2	0.4	.....	2.3	2.3	1.6	1.5
40	4 00	10 15	4 07a	9 28b	3.4	4.3	2.4	4.9	2.5	0.5	.....	2.5	3.3	2.1	7.0
41	6 00	12 15	6 08a	11 23b	2.8	3.5	2.0	4.2	2.3	0.4	.....	2.3	2.8	1.7	8.0
42	4 00	10 15	4 08a	9 29b	3.5	4.4	2.5	5.0	2.5	0.5	.....	2.6	2.3	2.1	8.5
43	4 45	11 00	4 52a	10 15b	3.8	4.7	2.7	5.4	2.6	0.5	.....	2.7	2.5	2.3	8.5
44	4 50	11 00	4 56a	10 21b	5.0	6.2	3.6	6.8	3.0	0.6	.....	3.1	3.1	2.9	9.0
45	5 00	11 15	5 07a	10 32b	4.0	5.0	2.8	5.6	2.7	0.5	.....	2.7	2.6	2.4	9.0
46	4 30	10 45	4 37a	10 00b	3.8	4.7	2.7	5.4	2.6	0.5	.....	2.7	2.5	2.3	9.0
47	4 45	11 00	4 52a	10 15b	3.8	4.7	2.7	5.4	2.6	0.5	.....	2.7	2.5	2.3	9.0
48	3 06	9 43	2 31a	8 58b	0.9	1.1	0.6	1.4	0.1	0.8	.....	0.9	0.7	0.9	11.0
49	7 10	1 00	7 16a	0 21a	5.0	6.2	3.6	6.8	3.0	0.6	.....	3.1	3.1	2.9	8.5
50	5 25	11 40	5 37a	10 21b	1.2	1.5	0.9	2.1	1.5	0.3	.....	1.5	0.9	0.8	7.5
51	6 00	12 15	6 10a	11 12b	1.9	2.4	1.4	3.1	1.9	0.4	.....	1.9	1.4	1.2	7.0
52	4 25	10 38	4 35a	9 35b	1.9	2.4	1.4	3.1	1.9	0.4	.....	1.9	1.4	1.2	7.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of range.	
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.		LW.
POLYNESIA—Continued.											
NORTH PACIFIC GROUPS—cont'd.											
Hawaiian or Sandwich Islands.											
		North.		West.			Time meridian, 157° 30' W.		Mean Lower Low Water.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Eleele, Hanapepe Bay, Kauai I.....	21 54	159 35	10 38	Honolulu.....	207	- 0 51	+ 1 28	-0.2	0.0	0.88
2	HONOLULU, Oahu Island.....	21 18	157 52	10 31	Honolulu.....	207	0 00	0 00	0.0	0.0	1.00
3	Kaunakakai, Molokai Island.....	21 05	157 02	10 28	Honolulu.....	207	- 1 13	- 1 07	+0.5	+0.1	1.36
4	Kahului, Maui Island.....	20 54	156 29	10 26	Honolulu.....	207	- 1 45	- 1 45	+0.6	+0.2	1.44
5	Kihei, Maalaea B., Maui Island.....	20 47	156 28	10 26	Honolulu.....	207	- 0 10	- 0 27	+0.7	+0.3	1.36
6	Lahaina, Maui Island.....	20 50	156 40	10 27	Honolulu.....	207	- 0 20	- 0 06	+0.7	+0.2	1.44
7	Kealahou, Hawaii Island.....	19 28	155 56	10 24	Honolulu.....	207	- 1 35	- 1 57	+0.1	0.0	1.10
8	Hilo, Hawaii Island.....	19 44	155 05	10 20	Honolulu.....	207	- 0 50	- 1 05	+0.8	+0.2	1.58
SOUTH PACIFIC GROUPS.											
Detached islands.											
		South.					Local time.		Mean Low Water Springs.		
9	Sala y Gomez Island.....	26 19	105 26	7 02	Apia.....	211	+ 9 51	+ 9 54	0.0	0.0	1.02
10	Easter Island.....	27 10	109 21	7 17	Apia.....	211	+ 6 32	+ 6 33	-0.4	0.0	0.88
11	Rapa or Oparo Island.....	27 37	144 19	9 37	Apia.....	211	+ 6 06	+ 6 09	-0.8	0.0	0.73
12	Caroline Atoll.....	10 00	150 15	10 01	Apia.....	211	+ 9 57	+ 9 59	-1.8	-0.2	0.35
13	Tonga-rewa or Penrhyn Island.....	9 00	157 55	10 32	Apia.....	211	- 0 27	- 0 24	-1.5	-0.1	0.46
14	Suvarof Island.....	13 13	163 12	10 53	Apia.....	211	+ 9 09	+ 9 10	-0.8	0.0	0.73
15	Uea, Uvea, or Wallis Island.....	13 24	176 08	11 45	Apia.....	211	+ 0 16	+ 0 17	+1.1	+0.1	1.38
Tuamotu or Low Archipelago.											
16	Gambier or Mangareva Island.....	23 05	135 00	9 00	Apia.....	211	- 4 40	- 4 39	-0.8	0.0	0.73
17	Bow, Harpe, or Hao Island.....	18 20	140 45	9 23	Apia.....	211	- 3 49	- 3 46	-0.8	0.0	0.73
18	Naiara or Rangiroa Island.....	14 58	147 52	9 51	Apia.....	211	- 1 58	- 1 57	-1.0	-0.2	0.65
Marquesas Islands.											
19	Santa Christina or Taou-ata Island.....	9 55	139 08	9 17	Apia.....	211	- 3 59	- 3 56	0.0	0.0	0.98
20	Tai-o-hae B., Nouka Hiva Island.....	8 52	140 00	9 20	Apia.....	211	- 2 39	- 2 36	+0.3	+0.1	1.06
Society Islands.											
21	Tahiti or Otaheite Island.....	17 30	149 30	9 58	Apia.....	211	- 6 53	- 6 52	-2.0	-0.2	0.31
22	Borabora or Bolabola Island.....	16 30	151 45	10 07	Apia.....	211	- 6 43	- 6 40	-1.6	-0.2	0.42
Tubuai or Austral Islands.											
23	Tubuai Island.....	28 25	149 33	9 58	Apia.....	211	- 3 28	- 3 27	-0.8	0.0	0.73
Cook or Hervey Islands.											
24	Rarotonga Island.....	21 15	159 40	10 39	Apia.....	211	- 0 27	- 0 24	-0.4	0.0	0.85
Phoenix Islands.											
25	Enderbury Island.....	3 09	171 11	11 25	Apia.....	211	- 1 25	- 1 22	+1.2	+0.2	1.42
Tokelau or Union Islands.											
26	Fakaofu or Bowditch Island.....	9 25	171 15	11 25	Apia.....	211	- 0 25	- 0 24	-0.8	0.0	0.73
Samoa or Navigator Islands.											
27	APIA, Upolu Island.....	13 50	171 44	11 27	Apia.....	211	0 00	0 00	0.0	0.0	1.00
28	Pango Pango, Tutuila Island.....	14 17	170 42	11 23	Apia.....	211	+ 0 35	+ 0 33	-0.4	0.0	0.85
29	Manua Island.....	14 15	169 30	11 18	Apia.....	211	- 0 25	- 0 24	+1.2	+0.2	1.42
Tonga or Friendly Islands.											
30	Vavau Island.....	18 34	173 58	11 36	Apia.....	211	- 0 05	- 0 02	+0.6	0.0	1.19
31	Namuka Island.....	20 15	174 46	11 39	Apia.....	211	+ 1 25	+ 1 23	0.0	0.0	1.00
32	Tongatabu Harbor.....	21 00	175 10	11 41	Apia.....	211	- 0 05	- 0 02	+0.6	0.0	1.19
Fiji Islands.											
			East.								
33	Vatua or Turtle Island.....	19 49	181 46	12 07	Apia.....	211	- 1 04	- 1 01	0.0	0.0	0.98
34	Mango Island.....	17 25	180 50	12 08	Apia.....	211	- 1 04	- 1 01	0.0	0.0	0.98
35	Totoua Island.....	18 56	180 10	12 01	Apia.....	211	- 0 39	- 0 41	+0.3	+0.1	1.06
36	Savu Savu Bay, Vanua Levu Island.....	16 43	179 15	11 57	Apia.....	211	- 1 14	- 1 13	+1.0	+0.2	1.35
37	Suva Harbor, Viti Levu Island.....	18 08	178 26	11 54	Apia.....	211	- 0 44	- 0 46	+0.4	0.0	1.12
38	Ngaloa Bay, Kandavu Island.....	19 02	178 15	11 53	Apia.....	211	- 0 34	- 0 36	+0.7	+0.1	1.23
Detached Islands.											
39	Rotumah Island.....	12 30	177 02	11 48	Apia.....	211	- 0 58	- 1 00	+0.9	+0.1	1.31
40	North Minerva Reef.....	23 36	181 06	12 04	Apia.....	211	+ 0 36	+ 0 34	+2.2	+0.2	1.78
Kermadec Islands.											
41	Raoul or Sunday Island.....	29 13	182 15	12 09	Auckland.....	219	+11 22	+11 37	-5.2	-0.6	0.38

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Ge).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	2 50	11 21	3 01a	10 00b	1.0	1.3	0.7	1.8	1.3	0.3	.....	1.3	0.6	0.7	10.5
2	3 48	10 00	4 00a	8 38b	1.2	1.5	0.8	2.0	1.5	0.3	4 31	1.5	0.7	0.8	10.0
3	2 38	8 56	2 49a	7 49b	1.6	2.1	1.1	3.2	2.4	0.3	.....	2.4	1.0	1.1	10.0
4	2 08	8 20	2 18a	7 18b	1.7	2.2	1.2	3.3	2.5	0.4	.....	2.5	1.1	1.2	10.0
5	3 43	9 38	3 53a	8 36b	1.6	2.1	1.1	3.2	2.4	0.3	.....	2.4	1.2	1.3	10.0
6	3 32	9 58	3 32a	8 56b	1.7	2.2	1.2	3.3	2.5	0.4	.....	2.5	1.1	1.1	10.0
7	2 20	8 10	2 32a	6 53b	1.3	1.6	0.9	2.2	1.5	0.3	.....	1.6	0.8	0.9	9.5
8	3 09	9 06	3 20a	8 04b	1.8	2.3	1.3	3.4	2.6	0.4	.....	2.6	1.2	1.2	9.5
9	4 00	10 15	3 59a	10 25b	2.7	3.3	2.0	2.8	0.4	0.1	.....	0.4	1.6	1.3	13.5
10	0 40	6 53	0 38a	7 04b	2.3	2.8	1.7	2.4	0.4	0.1	.....	0.4	1.4	1.1	13.0
11	0 10	6 25	0 09a	6 35b	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	10.0
12	4 00	10 14	3 58a	10 28b	0.9	1.1	0.7	0.9	0.2	0.0	.....	0.2	0.6	0.9	7.0
13	6 00	12 15	5 58a	12 31b	1.2	1.5	0.9	1.2	0.3	0.0	.....	0.3	0.8	0.5	7.0
14	3 10	9 23	3 09a	9 33b	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	8.0
15	6 40	0 28	6 39a	0 35a	3.6	4.4	2.7	3.7	0.4	0.1	.....	0.4	2.2	1.7	9.0
16	1 50	8 03	1 49b	8 13b	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	9.5
17	2 40	8 55	2 39b	9 05b	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	8.0
18	4 30	10 43	4 38b	10 55b	1.7	2.1	1.3	1.7	0.3	0.1	.....	0.3	1.0	0.8	7.5
19	2 30	8 45	2 29b	8 55b	2.5	3.1	1.9	2.6	0.4	0.1	.....	0.4	1.6	1.2	7.0
20	3 50	10 06	3 49b	10 14b	2.8	3.5	2.1	2.9	0.4	0.1	.....	0.4	1.8	1.4	7.0
21	12 00	5 48	11 58a	6 04b	0.8	1.0	0.6	0.8	0.2	0.0	.....	0.2	0.5	0.3	8.0
22	12 10	6 00	12 08a	6 12b	1.1	1.4	0.8	1.1	0.2	0.0	.....	0.2	0.7	0.5	7.5
23	3 00	9 13	2 59b	9 28b	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	9.5
24	6 00	12 15	5 59b	12 24b	2.2	2.7	1.7	2.2	0.3	0.1	.....	0.3	1.4	1.1	9.0
25	5 00	11 15	4 59b	11 22b	3.7	4.6	2.7	3.8	0.4	0.1	.....	0.4	2.3	1.8	8.0
26	6 00	12 13	5 59b	12 23b	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	8.5
27	6 25	0 12	6 22b	0 20a	2.6	3.2	2.0	2.7	0.3	0.1	17 10	0.3	1.6	1.3	8.5
28	7 00	0 45	6 59b	0 54a	2.2	2.7	1.6	2.2	0.3	0.1	.....	0.3	1.4	1.1	8.5
29	6 00	12 13	5 59b	12 20b	3.7	4.6	2.7	3.7	0.4	0.1	.....	0.4	2.3	1.8	8.5
30	6 20	0 10	6 19b	0 18a	3.1	3.8	2.3	3.1	0.4	0.1	.....	0.4	1.9	1.5	9.5
31	7 50	1 35	7 49b	1 45a	2.6	3.2	2.0	2.6	0.4	0.1	.....	0.4	1.6	1.3	10.0
32	6 20	0 10	6 19b	0 18a	3.1	3.8	2.3	3.1	0.4	0.1	.....	0.4	1.9	1.5	10.0
33	6 10	0 00	6 09b	0 10a	2.5	3.1	1.9	2.5	0.4	0.1	.....	0.4	1.6	1.2	10.0
34	6 10	0 00	6 09b	0 10a	2.5	3.1	1.9	2.5	0.4	0.1	.....	0.4	1.6	1.2	9.5
35	6 35	0 20	6 34b	0 29a	2.8	3.5	2.1	2.8	0.4	0.1	.....	0.4	1.8	1.4	10.0
36	6 00	12 13	5 59b	12 20b	3.5	4.3	2.6	3.5	0.4	0.1	.....	0.4	2.2	1.7	9.5
37	6 30	0 15	6 29b	0 24a	2.9	3.6	2.2	2.9	0.4	0.1	.....	0.4	1.8	1.4	9.5
38	6 40	0 25	6 39b	0 33a	3.2	4.0	2.4	3.2	0.4	0.1	.....	0.4	2.0	1.6	10.0
39	6 15	0 00	6 14b	0 08a	3.4	4.2	2.5	3.5	0.4	0.1	.....	0.4	2.1	1.7	9.5
40	7 50	1 35	7 49b	1 42a	4.5	5.5	3.3	4.6	0.5	0.1	.....	0.5	2.8	2.2	10.5
41	6 00	12 13	6 02b	12 09b	3.0	3.3	2.7	3.3	0.3	0.2	.....	0.3	1.6	1.0	12.0

TABLE 3.—TIDAL DIFFERENCES.

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of range.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
AUSTRALASIA.												
NEW ZEALAND.												
Stewart Island.												
		South.	East.				Time meridian, 178° 30' East.		Mean Low Water Springs.			
		° ' "	° ' "	A. M.			A. M.	A. M.	feet.	feet.		
1	Port Adventure	47 04	168 12	11 13	Auckland	219	+6 25	+6 42	-0.9	-0.1	0.90	
2	Port Pegasus	47 13	167 43	11 11	Auckland	219	+5 08	+5 25	-0.8	-0.2	0.92	
3	Mason Bay	46 56	167 45	11 11	Auckland	219	+6 13	+6 30	-1.1	-0.3	0.90	
4	Paterson Inlet	46 57	168 09	11 13	Auckland	219	+6 41	+6 58	-0.9	-0.2	0.91	
South Island.												
5	Akaroa Harbor	43 45	172 46	11 31	Auckland	219	-3 18	-3 01	-1.3	-0.2	0.86	
6	Timaru	44 23	171 18	11 25	Auckland	219	-3 17	-3 05	-2.3	-0.4	0.75	
7	Oamaru	45 06	171 01	11 24	Auckland	219	-3 20	-3 08	-2.7	-0.4	0.70	
8	Otago Harbor Entrance	45 46	170 44	11 23	Auckland	219	-3 29	-3 14	-2.9	-0.2	0.65	
9	Port Chalmers, Otago Harbor	45 49	170 39	11 23	Auckland	219	-3 23	-3 13	-3.0	-0.3	0.65	
10	Dunedin, Otago Harbor	45 53	170 32	11 22	Auckland	219	-2 58	-2 46	-3.1	-0.3	0.64	
11	Molyneux Bay	46 23	169 38	11 19	Auckland	219	-4 00	-3 48	-0.9	-0.2	0.91	
12	Waikawa Harbor	46 39	169 09	11 17	Auckland	219	-4 28	-4 16	-1.1	-0.2	0.88	
13	Ruapuke Island, Foveaux Strait.	46 38	168 33	11 14	Auckland	219	+6 50	+7 02	-1.1	-0.3	0.90	
14	Awarui or Bluff Harbor	46 36	168 22	11 13	Auckland	219	+6 46	+6 58	-0.9	-0.2	0.91	
15	New River	46 29	168 19	11 13	Auckland	219	+5 50	+6 02	-0.9	-0.1	0.90	
16	Center Island, Foveaux Strait	46 28	167 52	11 10	Auckland	219	+5 49	+6 01	-1.1	-0.2	0.88	
17	Preservation Inlet	46 08	166 37	11 06	Auckland	219	+4 33	+4 50	-1.2	-0.2	0.87	
18	Dusky Sound	45 46	166 33	11 06	Auckland	219	+4 28	+4 45	+0.8	-0.2	1.13	
19	Bligh Sound	44 50	167 32	11 10	Auckland	219	+4 04	+4 21	-0.8	-0.2	0.92	
20	Milford Sound	44 36	167 49	11 11	Auckland	219	+4 01	+4 17	-0.9	-0.1	0.90	
21	Jackson Bay	43 59	168 38	11 15	Auckland	219	+3 54	+4 11	-0.7	0.0	0.91	
22	Haast River Entrance	43 50	169 04	11 16	Auckland	219	+3 53	+4 10	+0.9	-0.2	0.91	
23	Bruce Bay	43 35	169 36	11 18	Auckland	219	+3 45	+4 02	-1.3	-0.2	0.86	
24	Okarito Lagoon	43 17	170 18	11 21	Auckland	219	+3 38	+3 55	-3.5	-0.4	0.60	
25	Hokitika Bar	42 42	170 59	11 24	Auckland	219	+3 25	+3 42	+0.7	-0.1	1.10	
26	Greymouth, Grey River	42 27	171 13	11 25	Auckland	219	+3 13	+3 30	+0.9	-0.2	1.14	
27	Westport, Buller River	41 46	171 38	11 27	Auckland	219	+2 56	+3 13	+0.5	-0.2	1.09	
28	Wanganui Inlet	40 35	172 33	11 30	Auckland	219	+2 28	+2 45	-1.7	-0.3	0.92	
29	Motupipi River, West Entrance	40 48	172 49	11 31	Auckland	219	+2 37	+2 54	+4.9	+0.1	1.62	
30	Astrolabe	40 58	173 06	11 32	Auckland	219	+2 41	+2 58	+4.7	+0.4	1.56	
31	Nelson	41 15	173 17	11 33	Auckland	219	+2 50	+3 07	+8.0	0.0	1.39	
32	Croisilles Harbor	41 03	173 42	11 35	Auckland	219	+2 43	+3 00	+2.8	0.0	1.36	
33	Port Hardy	40 42	173 56	11 36	Auckland	219	+2 37	+2 54	+2.7	0.0	1.35	
34	Rangitoto Road	40 48	174 01	11 36	Auckland	219	+2 32	+2 49	-1.3	-0.2	0.86	
35	Pelorus Sound Entrance	40 52	174 10	11 37	Auckland	219	+2 16	+2 33	+1.9	0.0	1.25	
36	Queen Charlotte Sound Entrance	41 04	174 21	11 37	Auckland	219	+1 31	+1 48	-0.9	-0.2	0.91	
37	Pictou Harbor	41 18	174 03	11 36	Wellington	215	+4 01	+4 24	+1.6	0.0	1.45	
38	Port Underwood	41 23	174 10	11 37	Wellington	215	+1 10	+1 28	+3.8	+0.2	2.12	
39	Cape Campbell	41 44	174 19	11 37	Wellington	215	-0 05	+0 08	+3.8	+0.2	2.09	
40	Kaikoura Peninsula	42 28	173 44	11 35	Wellington	215	-0 23	-0 10	+2.3	+0.1	1.67	
41	Port Lyttleton	43 35	172 50	11 31	Wellington	215	-0 44	-0 31	+2.5	+0.1	1.73	
North Island.												
42	East Cape	37 40	176 32	11 54	Wellington	215	+2 52	+3 05	+3.0	+0.2	1.88	
43	Poverty Bay	38 42	173 01	11 52	Wellington	215	+1 25	+1 38	+1.8	+0.2	1.52	
44	Clyde (Waioa River)	39 02	177 26	11 50	Wellington	215	+1 12	+1 25	+3.1	+0.1	1.91	
45	Napier (Ahuriri Harbor)	39 29	176 55	11 48	Wellington	215	+1 04	+1 12	0.0	0.0	0.97	
46	Cape Palliser	41 38	175 15	11 41	Wellington	215	-0 14	-0 06	+2.0	0.0	1.56	
47	WELLINGTON, Port Nicholson	41 17	174 46	11 39	Wellington	215	0 00	0 00	0.0	0.0	1.00	
48	Porirua Harbor	41 04	174 51	11 39	Wellington	215	+1 58	+2 11	+4.0	-0.2	2.18	
49	Manawatu River	40 29	175 13	11 41	Wellington	215	+4 46	+4 59	+2.6	+0.2	1.76	
50	Wanganui River	39 58	175 00	11 40	Wellington	215	+5 12	+5 25	+3.2	+0.2	1.94	
51	Opunake Bay	39 29	173 52	11 35	Auckland	219	+2 18	+2 35	-0.1	0.0	0.99	
52	New Plymouth (Taranaki)	39 05	174 05	11 36	Auckland	219	+2 07	+2 24	+2.5	+0.2	1.30	
53	Mokau River	38 42	174 38	11 39	Auckland	219	+2 08	+2 18	+2.9	+0.3	1.55	
54	Kawhia Harbor	38 04	174 50	11 39	Auckland	219	+1 59	+2 16	+2.8	+0.2	1.34	
55	Whaingaroa Harbor	37 47	174 53	11 40	Auckland	219	+1 56	+2 10	+3.1	+0.2	1.38	
56	Waikato River	37 24	174 47	11 39	Auckland	219	+1 57	+2 11	+3.0	+0.2	1.38	
57	Manukau Harbor Entrance	37 03	174 32	11 38	Auckland	219	+1 55	+2 07	+3.4	+0.2	1.42	
58	Manukau Waioipa Channel	37 04	174 31	11 38	Auckland	219	+2 35	+2 52	+4.7	+0.4	1.56	
59	Onehunga Wharf	36 56	174 49	11 39	Auckland	219	+3 24	+3 51	+4.7	+0.4	1.56	
60	Kaipara Harbor Entrance	36 23	174 10	11 37	Auckland	219	+1 51	+2 08	+0.9	0.0	1.12	
61	Hokitanga River Entrance	35 34	173 19	11 33	Auckland	219	+1 35	+1 52	+0.2	0.0	1.03	
62	Cape Maria Van Diemen	34 30	172 39	11 31	Auckland	219	+0 47	+1 04	-2.0	-0.2	0.77	
63	Parengarenga	34 31	173 02	11 32	Auckland	219	+0 41	+0 58	-1.9	-0.2	0.75	
64	Rangaunu River	34 52	173 19	11 33	Auckland	219	+0 35	+0 52	-1.7	-0.1	0.79	
65	Awaniui River	35 00	173 17	11 33	Auckland	219	+2 40	+3 17	-0.7	0.0	0.91	
66	Whangaroa Harbor	35 06	173 46	11 35	Auckland	219	+0 33	+0 50	-2.4	-0.2	0.71	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	A. M.	H. M.	H. M.	H. M.	feet.	feet.	feet.	feet.	feet.	feet.	H. M.	feet.	feet.	feet.	East.
1	0 44	6 59	0 47a	6 56b	6.9	8.1	5.6	7.2	0.5	0.5	.....	0.6	4.0	3.6	16.5
2	11 45	5 40	11 46b	5 36b	7.1	7.9	6.2	7.2	0.5	0.1	.....	0.5	4.0	3.6	16.5
3	0 80	6 45	0 81a	6 41b	6.9	7.7	6.1	7.0	0.5	0.1	.....	0.5	3.8	3.4	16.5
4	1 00	7 15	1 01a	7 11b	7.0	7.8	6.2	7.1	0.5	0.1	.....	0.5	3.9	3.5	16.5
5	3 45	10 00	3 46a	9 56b	6.6	7.4	5.8	6.7	0.5	0.1	.....	0.5	3.7	3.3	16.0
6	3 40	9 50	3 41a	9 47b	5.8	6.5	5.1	5.9	0.4	0.1	.....	0.4	3.2	2.9	16.0
7	3 35	9 45	3 36a	9 41b	5.4	6.0	4.8	5.5	0.4	0.1	.....	0.4	3.0	2.7	16.0
8	3 25	9 38	3 30a	9 34b	5.0	5.8	4.0	5.2	0.4	0.4	.....	0.5	2.9	2.6	16.5
9	3 31	9 39	3 32a	9 35b	5.0	5.6	4.4	5.1	0.4	0.1	4 52	0.4	2.8	2.5	16.5
10	3 55	10 05	3 56a	10 01b	4.9	5.5	4.3	5.0	0.4	0.1	.....	0.4	2.8	2.4	16.5
11	2 50	9 00	2 51a	8 56b	7.0	7.8	6.2	7.1	0.5	0.1	.....	0.5	3.9	3.5	16.5
12	2 20	8 30	2 21a	8 26b	6.8	7.6	6.0	6.9	0.5	0.1	.....	0.5	3.8	3.4	16.5
13	1 10	7 20	1 11a	7 16b	6.9	7.7	6.1	7.0	0.5	0.1	.....	0.5	3.8	3.4	16.5
14	1 05	7 15	1 06a	7 11b	7.0	7.8	6.2	7.1	0.5	0.1	.....	0.5	3.9	3.5	16.5
15	0 09	6 19	0 12a	6 16b	6.9	8.1	5.6	7.2	0.5	0.5	.....	0.6	4.0	3.6	16.5
16	0 06	6 15	0 06a	6 11b	6.8	7.6	6.0	6.9	0.5	0.1	.....	0.5	3.8	3.4	16.5
17	11 10	5 00	11 11b	4 56a	6.7	7.5	5.9	6.8	0.5	0.1	.....	0.5	3.8	3.4	16.0
18	11 05	4 55	11 06b	4 52a	8.7	9.7	7.7	8.8	0.5	0.1	.....	0.5	4.8	4.4	16.0
19	10 45	4 35	10 46b	4 31a	7.1	8.0	6.2	7.2	0.5	0.1	.....	0.5	4.0	3.6	16.0
20	10 48	4 32	10 46b	4 29a	6.9	8.1	5.6	7.2	0.5	0.5	.....	0.6	4.0	3.6	15.5
21	10 40	4 30	10 43b	4 27a	7.0	8.2	5.6	7.3	0.5	0.5	.....	0.6	4.1	3.6	15.5
22	10 40	4 30	10 41b	4 26a	7.0	7.8	6.2	7.1	0.5	0.1	.....	0.5	3.9	3.5	15.5
23	10 34	4 24	10 37b	4 21a	6.6	7.7	5.3	6.9	0.5	0.5	.....	0.6	3.8	3.4	15.5
24	10 30	4 20	10 31b	4 16a	4.6	5.1	4.0	4.7	0.4	0.1	.....	0.4	2.6	2.3	15.5
25	10 20	4 10	10 21b	4 07a	8.5	9.5	7.5	8.6	0.5	0.1	.....	0.5	4.8	4.2	15.5
26	10 10	4 00	10 11b	3 57a	8.8	9.8	7.7	8.9	0.5	0.1	.....	0.5	4.9	4.4	15.5
27	9 55	3 45	9 56b	3 42a	8.4	9.4	7.4	8.5	0.5	0.1	.....	0.5	4.7	4.2	15.0
28	9 30	3 20	9 31b	3 17a	6.3	7.0	5.5	6.4	0.4	0.1	.....	0.4	3.5	3.2	15.0
29	9 40	3 30	9 41b	3 28a	12.5	14.0	11.0	12.7	0.6	0.2	.....	0.6	7.0	6.2	15.0
30	9 45	3 35	9 47b	3 33a	12.0	14.0	9.7	12.4	0.6	0.6	.....	0.8	7.0	6.2	15.0
31	9 55	3 45	9 56b	3 42a	10.7	12.0	9.4	10.8	0.6	0.1	.....	0.6	6.0	5.4	15.0
32	9 50	3 40	9 51b	3 37a	10.5	11.8	9.2	10.6	0.6	0.1	.....	0.6	5.9	5.2	15.0
33	9 45	3 35	9 46b	3 32a	10.4	11.6	9.2	10.5	0.6	0.1	.....	0.6	5.8	5.2	15.0
34	9 40	3 30	9 43b	3 27a	6.6	7.7	5.3	6.9	0.5	0.5	.....	0.6	3.8	3.4	15.0
35	9 25	3 15	9 26b	3 12a	9.6	10.7	8.4	9.7	0.6	0.1	.....	0.6	5.4	4.8	15.0
36	8 40	2 30	8 41b	2 26a	7.0	7.8	6.2	7.1	0.5	0.1	.....	0.5	3.9	3.5	15.0
37	8 50	2 50	8 49b	2 56a	4.8	5.2	4.5	4.9	0.5	0.1	.....	0.5	2.6	2.4	15.0
38	6 00	12 15	5 59a	12 20b	7.0	7.6	6.6	7.1	0.6	0.1	.....	0.6	3.8	3.5	15.0
39	4 45	11 00	4 44a	11 05b	6.9	7.5	6.5	7.0	0.6	0.1	.....	0.6	3.8	3.4	15.0
40	4 25	10 40	4 24a	10 45b	5.5	6.0	5.2	5.6	0.5	0.1	.....	0.5	3.0	2.8	15.5
41	4 00	10 15	3 59a	10 20b	5.7	6.2	5.4	5.8	0.5	0.1	.....	0.5	3.1	2.8	16.0
42	8 00	1 50	7 59a	1 55a	6.2	6.8	5.8	6.3	0.5	0.1	.....	0.5	3.4	3.1	14.0
43	6 30	0 20	6 29a	0 26a	5.0	5.5	4.7	5.1	0.5	0.1	.....	0.5	2.8	2.5	14.0
44	6 15	0 05	6 14a	0 11a	6.3	6.9	5.9	6.4	0.6	0.1	.....	0.6	3.4	3.2	14.5
45	6 05	12 15	6 04a	12 22b	3.2	3.5	3.0	3.3	0.4	0.1	.....	0.4	1.8	1.6	14.5
46	4 40	10 50	4 39a	10 56b	5.2	5.7	4.9	5.3	0.5	0.1	.....	0.5	2.8	2.6	15.0
47	4 52	10 54	4 51a	11 01b	3.3	3.6	3.1	3.4	0.4	0.1	3 59	0.4	1.8	1.6	15.0
48	6 50	0 40	6 49a	0 45a	7.2	7.8	6.8	7.3	0.6	0.1	.....	0.6	3.9	3.6	15.0
49	9 40	3 30	9 39a	3 35a	5.8	6.3	5.4	5.9	0.5	0.1	.....	0.5	3.2	3.0	15.0
50	10 05	3 55	10 04a	4 00a	6.4	7.0	6.0	6.5	0.6	0.1	.....	0.6	3.5	3.2	15.0
51	9 25	3 15	9 29a	3 12a	7.6	8.8	6.3	7.8	0.2	0.5	.....	0.6	4.4	4.0	15.0
52	9 15	3 05	9 19a	3 02a	10.0	11.6	8.2	10.3	0.3	0.6	.....	0.7	5.8	5.2	14.5
53	9 14	3 02	9 17a	2 59a	10.4	12.2	8.4	10.7	0.6	0.6	.....	0.7	6.1	5.4	14.0
54	9 10	3 00	9 13a	2 57a	10.3	11.9	8.5	10.6	0.3	0.6	.....	0.7	6.0	5.4	14.0
55	9 08	2 55	9 11a	2 52a	10.6	12.3	8.7	10.9	0.3	0.6	.....	0.7	6.2	5.5	14.0
56	9 08	2 55	9 11a	2 52a	10.5	12.2	8.4	10.8	0.6	0.6	.....	0.7	6.1	5.4	14.0
57	9 05	2 50	9 08a	2 47a	10.9	12.6	9.0	11.2	0.3	0.6	.....	0.7	6.3	5.6	13.5
58	9 45	3 35	9 48a	3 32a	12.0	13.9	9.9	12.3	0.3	0.6	.....	0.8	7.0	6.2	13.5
59	10 35	4 35	10 37a	4 33a	12.0	14.0	9.7	12.4	0.6	0.6	.....	0.8	7.0	6.2	13.5
60	9 00	2 50	9 04a	2 47a	8.6	10.0	7.1	8.9	0.3	0.5	.....	0.6	5.0	4.5	13.5
61	8 40	2 30	8 44a	2 27a	7.9	9.2	6.5	8.1	0.2	0.5	.....	0.6	4.6	4.2	13.5
62	7 50	1 40	7 54a	1 37a	5.9	6.8	4.9	6.1	0.2	0.4	.....	0.5	3.4	3.2	13.0
63	7 45	1 35	7 48a	1 32a	6.0	7.0	4.8	6.8	0.4	0.4	.....	0.5	3.5	3.1	13.0
64	7 40	1 30	7 43a	1 27a	6.1	7.1	4.9	6.4	0.4	0.4	.....	0.5	3.6	3.2	13.0
65	9 45	3 55	9 48a	3 52a	7.0	8.2	5.6	7.3	0.5	0.5	.....	0.6	4.1	3.6	13.0
66	7 40	1 30	7 45a	1 26a	5.5	6.4	4.5	5.7	0.2	0.4	.....	0.5	3.2	3.0	13.5



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of range.	
		Latitude.	Longitude.	Name.	Page.	Time.		Height.			
			Arc.			Time.	HW.	LW.	HW.		LW.
AUSTRALASIA—Continued.											
NEW ZEALAND—continued.											
North Island—Continued.											
		South.	East.			Time meridian, 17° 30' East.		Mean Low Water Springs.			
		°	°	h. m.		h. m.	h. m.	feet.	feet.		
1	Port Russell (Bay of Islands).....	35 16	174 08	11 37	Auckland	219	+0 17	+1 13	-2.8	-0.2	0.66
2	Whangaruru.....	35 26	174 24	11 38	Auckland	219	+0 06	+0 22	-2.3	-0.2	0.73
3	Tutukaka.....	35 39	174 34	11 38	Auckland	219	+0 02	+0 14	-2.1	-0.1	0.74
4	Wangari Harbor.....	35 53	174 30	11 38	Auckland	219	+0 05	+0 12	-2.1	-0.2	0.75
5	Great Barrier Island, Nagle Cove.....	36 11	175 33	11 42	Auckland	219	+0 19	+0 02	-0.1	-0.1	1.00
6	AUCKLAND HARBOR.....	36 50	174 49	11 39	Auckland	219	0 00	0 00	0.0	0.0	1.00
7	River Thames, Entrance.....	37 10	175 35	11 42	Auckland	219	+0 21	+0 38	+1.9	+0.1	1.23
8	Coromandel Harbor.....	36 45	175 31	11 42	Auckland	219	+0 09	+0 08	+1.7	+0.2	1.19
9	Mercury Bay.....	36 46	175 54	11 44	Auckland	219	+0 06	+0 11	-1.7	-0.2	0.81
10	Tauranga Harbor.....	37 36	176 12	11 45	Auckland	219	+0 12	+0 06	-2.7	-0.3	0.69
11	Opotiki River.....	38 00	177 18	11 49	Auckland	219	+0 21	+0 04	-3.7	-0.3	0.56
12	Cape Runaway.....	37 32	178 00	11 52	Auckland	219	+0 46	+1 03	-2.2	-0.2	0.74
LESSER ISLANDS.											
Detached islands.											
						Local time.					
13	Port Hutt, Chatham Islands.....	43 47	183 22	12 13	Auckland	219	-1 41	-0 13	-6.0	-0.6	0.30
14	Antipodes Islands.....	49 41	178 42	11 55	Auckland	219	-3 43	-3 31	-3.4	-0.4	0.62
15	Perseverance Harbor, Campbell I.....	52 34	169 09	11 17	Auckland	219	+6 54	+7 15	-5.0	-0.4	0.39
16	Port Ross, Auckland Island.....	50 32	166 17	11 05	Auckland	219	+4 49	+5 04	-5.3	-0.5	0.38
17	Norfolk Island.....	29 08	167 59	11 12	Auckland	219	+0 29	+0 43	-3.8	-0.4	0.56
18	Lord Howe Island.....	31 34	159 06	10 36	Sydney	223	-0 27	-0 26	+1.1	+0.1	1.30
19	Middleton Reef.....	29 27	159 09	10 37	Sydney	223	-0 32	-0 32	+1.0	0.0	1.27
New Caledonia.											
20	Port Alemnè, Isle of Pines.....	22 29	167 30	11 10	Apia	211	-11 42	-11 39	+0.4	0.0	1.12
21	Noumea Bay.....	22 12	166 30	11 06	Apia	211	-11 12	-11 11	0.0	0.0	0.99
22	Port St. Vincent.....	21 53	166 05	11 04	Apia	211	+10 53	+10 53	0.0	0.0	1.04
23	Port Balad.....	20 15	164 25	10 58	Apia	211	+11 28	+11 26	+0.3	+0.1	1.08
24	Port Yengen.....	20 39	164 56	11 00	Apia	211	+11 18	+11 19	+0.4	0.0	1.12
Loyalty Islands.											
25	Wreck Bay, Lifou Island.....	20 45	167 05	11 08	Apia	211	+11 43	+11 44	+0.9	+0.1	1.31
New Hebrides Islands.											
26	Port Sandwich, Mallicolo Island.....	16 26	167 47	11 11	Melbourne	227	+2 52	+2 40	+1.4	+0.4	1.65
27	Havannah Harbor, Efate Island.....	17 35	168 16	11 13	Melbourne	227	+2 42	+2 30	+0.8	+0.2	1.41
28	Anaitum Island.....	20 15	169 44	11 19	Melbourne	227	+2 37	+2 26	+1.0	+0.2	1.47
Banks Islands.											
29	Patteson, Vanua Lava Island.....	13 48	167 31	11 10	Apia	211	+11 53	+11 56	+0.6	0.0	1.19
Santa Cruz Islands.											
30	Vanikoro Island.....	11 36	166 55	11 08	Apia	211	+10 03	+10 06	+0.6	0.0	1.19
Solomon Islands.											
31	Makira Bay, San Christoval I.....	10 30	161 30	10 46	Apia	211	+11 59	+12 00	0.0	0.0	1.04
32	Vulavu, Isabel Island.....	8 30	159 40	10 39	Apia	211	+10 14	+10 17	+0.3	+0.1	1.08
33	Gazelle Harbor, Bougainville I.....	6 35	155 05	10 20	Apia	211	-7 36	-7 36	-0.4	0.0	0.85
New Britain Island.											
34	Blanche Bay.....	4 13	152 12	10 09	Apia	211	-10 35	-10 37	-1.0	-0.2	0.65
New Ireland Island.											
35	Holz Haven.....	2 48	150 57	10 04	Apia	211	-4 20	-4 19	-0.8	0.0	0.73
New Hanover Island.											
36	North Haven.....	2 26	149 55	10 00	Apia	211	-4 40	-4 39	-0.8	0.0	0.73
Louisade Archipelago.											
37	Joannet Harbor, Joannet Island.....	11 12	153 18	10 13	Apia	211	+2 40	+2 41	+2.5	+0.3	1.85
38	Richards Bay, Woodlark Island.....	9 03	152 49	10 11	Apia	211	-0 05	-0 04	+0.9	+0.1	1.31
NEW GUINEA, OR PAPUA.											
Dutch New Guinea.											
39	Dourga Strait.....	7 27	138 44	9 15	Bombay	251	-12 15	-12 09	+2.2	-0.2	1.29
40	Triton Bay.....	3 47	134 06	8 56	Nagasaki	175	+5 10	+5 05	-0.6	-0.2	0.95
41	Segar Bay.....	2 40	132 23	8 50	Nagasaki	175	-1 50	-1 55	-1.6	-0.4	0.79
42	Cape Spencer, Dampier Strait.....	0 53	131 15	8 45	Bombay	251	-5 49	-5 41	-0.6	-0.6	0.99
German New Guinea.											
43	Port Constantine.....	5 30	145 48	9 43	Nagasaki	175	+9 28	+9 24	-4.2	-0.6	0.40
44	Rook Island.....	5 33	148 00	9 52	Nagasaki	175	+8 58	+8 53	-4.4	-0.6	0.39
45	Parsee Point.....	6 58	147 10	9 49	Nagasaki	175	+9 13	+9 09	-4.2	-0.6	0.42
English New Guinea.											
46	Kiriwina, Trobriand Islands.....	8 28	151 03	10 04	Nagasaki	175	+8 57	+8 53	-4.4	-0.6	0.39
47	Cape Vogel, Ward Hunt Strait.....	9 40	150 01	10 00	Nagasaki	175	+9 02	+8 55	-5.0	-0.6	0.31
48	East Cape, Goschen Strait.....	10 13	150 54	10 04	Nagasaki	175	-0 28	-0 32	-2.6	-0.4	0.65
49	China Strait.....	10 33	150 41	10 03	Nagasaki	175	+0 12	+0 07	-1.8	-0.4	0.76
50	Su-a-u Harbor.....	10 43	150 14	10 01	Nagasaki	175	+1 02	+0 55	+0.2	-0.2	1.07
51	Port Moresby.....	9 25	147 07	9 48	Nagasaki	175	+0 38	+0 34	+0.2	-0.2	1.05
52	Fly River Entrance.....	8 43	143 26	9 34	Bombay	251	-1 20	-1 17	+1.8	-0.2	1.25

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	7 26	1 55	7 81a	1 51a	5.1	5.9	4.2	5.3	0.2	0.4	11 48	0.5	3.0	2.7	13.5
2	7 15	1 06	7 20a	1 01a	5.6	6.5	4.6	5.8	0.2	0.4	.....	0.5	3.2	3.0	13.5
3	7 08	0 57	7 11a	0 54a	5.7	6.7	4.6	6.0	0.4	0.4	.....	0.5	3.4	3.0	13.5
4	7 05	0 55	7 09a	0 51a	5.8	6.7	4.8	6.0	0.2	0.4	.....	0.5	3.4	3.1	13.5
5	6 55	0 45	6 59a	0 42a	7.7	8.9	6.3	7.9	0.2	0.5	.....	0.6	4.4	4.0	13.5
6	7 11	0 44	7 14a	0 41a	7.7	9.0	6.2	8.0	0.5	0.6	9 50	0.6	4.5	4.0	13.5
7	7 35	1 25	7 39a	1 22a	9.5	11.0	7.8	9.8	0.3	0.5	.....	0.7	5.5	5.0	13.5
8	7 05	0 55	7 09a	0 52a	9.2	10.7	7.6	9.5	0.3	0.5	.....	0.7	5.4	4.8	13.5
9	7 10	1 00	7 15a	0 56a	6.2	7.2	5.1	6.4	0.2	0.4	.....	0.6	3.6	3.3	13.5
10	7 05	0 55	7 10a	0 51a	5.3	6.1	4.4	5.5	0.2	0.4	.....	0.5	3.0	2.8	14.0
11	7 00	0 50	7 06a	0 45a	4.3	5.0	3.5	4.5	0.2	0.4	.....	0.5	2.5	2.4	14.0
12	8 10	2 00	8 14a	1 56a	5.7	6.6	4.7	5.9	0.2	0.4	.....	0.5	3.3	3.0	14.0
13	5 22	0 23	5 24a	0 20a	2.8	2.5	2.1	2.4	0.3	0.2	.....	0.4	1.2	1.2	15.5
14	3 20	9 30	3 22a	9 27a	4.8	5.3	4.3	5.2	0.4	0.2	.....	0.4	2.6	2.5	18.0
15	1 30	7 49	1 00a	7 24a	3.0	3.5	2.3	3.4	0.5	0.4	.....	0.6	1.8	1.7	19.0
16	11 50	5 38	11 52a	5 34a	2.9	3.2	2.6	3.2	0.3	0.2	.....	0.3	1.6	1.6	17.5
17	7 30	1 17	7 32a	1 13a	4.3	4.7	3.9	4.6	0.3	0.2	.....	0.4	2.4	2.3	11.5
18	8 20	2 08	8 13a	2 32a	4.4	5.4	3.3	5.4	1.7	0.5	.....	1.8	2.7	2.5	11.0
19	8 15	2 02	8 09a	2 25a	4.3	5.3	3.2	5.3	1.7	0.5	.....	1.7	2.6	2.4	10.5
20	7 55	1 45	7 54a	1 54a	2.9	3.6	2.2	3.0	0.4	0.1	.....	0.4	1.8	1.4	10.0
21	8 25	2 13	8 24a	2 23a	2.5	3.1	1.9	2.6	0.4	0.1	.....	0.4	1.6	1.2	10.0
22	5 40	11 52	5 39a	12 02b	2.7	3.3	2.0	2.8	0.4	0.1	.....	0.4	1.6	1.3	10.0
23	6 15	0 00	6 14a	0 09a	2.8	3.5	2.1	2.9	0.4	0.1	.....	0.4	1.8	1.2	9.5
24	6 05	12 18	6 04a	12 27b	2.9	3.6	2.2	3.0	0.4	0.1	.....	0.4	1.8	1.4	10.0
25	6 30	0 18	6 29a	0 26a	3.4	4.2	2.5	3.5	0.4	0.1	.....	0.4	2.1	1.7	10.0
26	4 38	10 50	3 32b	11 01b	2.8	3.8	1.9	3.1	0.5	1.6	.....	1.7	1.9	1.8	9.5
27	5 15	11 27	4 10b	11 38b	2.4	3.0	1.8	2.7	0.4	1.1	.....	1.3	1.5	1.4	9.5
28	5 10	11 23	4 05b	11 34b	2.5	3.1	1.9	2.9	0.4	1.2	.....	1.4	1.6	1.5	10.0
29	6 40	0 30	6 39a	0 38a	3.1	3.8	2.3	3.2	0.4	0.1	.....	0.4	1.9	1.5	9.5
30	4 50	11 05	4 49a	11 13b	3.1	3.8	2.3	3.2	0.4	0.1	.....	0.4	1.9	1.5	9.0
31	6 45	0 33	6 44a	0 43a	2.7	3.3	2.0	2.8	0.4	0.1	.....	0.4	1.6	1.3	8.5
32	5 00	11 15	4 59a	11 24b	2.8	3.5	2.1	2.9	0.4	0.1	.....	0.4	1.8	1.4	8.5
33	12 00	5 47	11 59a	6 01a	2.2	2.7	1.6	2.2	0.3	0.1	.....	0.3	1.4	1.1	7.0
34	9 00	2 45	8 58a	2 57a	1.7	2.1	1.3	1.7	0.3	0.1	.....	0.3	1.0	0.8	6.5
35	2 50	9 08	2 49b	9 13a	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	6.0
36	2 30	8 43	2 29b	8 53a	1.9	2.4	1.4	1.9	0.3	0.1	.....	0.3	1.2	0.9	6.0
37	9 50	3 38	9 49b	3 44b	4.8	5.9	3.6	4.9	0.5	0.1	.....	0.5	3.0	2.4	7.5
38	7 05	0 53	7 04b	1 01b	3.4	4.2	2.5	3.4	0.4	0.1	.....	0.4	2.1	1.7	7.0
39	11 45	5 33	12 10a	5 32a	11.3	14.0	8.3	20.2	2.5	6.1	.....	6.6	7.0	8.6	4.0
40	0 55	7 08	1 30b	7 06a	5.9	7.3	4.3	12.3	1.8	4.4	.....	4.8	3.6	5.2	2.5
41	6 20	0 07	6 59b	0 05b	4.9	6.0	3.6	10.7	1.6	4.0	.....	4.4	3.0	4.4	2.5
42	5 45	12 00	6 14b	11 59a	8.7	10.7	6.4	16.5	2.2	5.4	.....	5.8	5.4	7.1	2.0
43	5 15	11 28	6 08b	11 26a	2.5	3.1	1.8	6.7	1.2	2.9	.....	3.1	1.6	2.8	5.0
44	4 45	10 57	5 40b	10 54a	2.4	3.0	1.8	6.4	1.1	2.8	.....	3.1	1.5	2.6	5.5
45	5 00	11 13	5 58b	11 11a	2.6	3.2	1.9	6.7	1.2	2.9	.....	3.2	1.6	2.8	5.5
46	4 45	10 58	5 40b	10 55a	2.4	3.0	1.8	6.4	1.1	2.8	.....	3.1	1.5	2.6	6.5
47	4 50	11 00	5 51b	10 57a	1.9	2.4	1.4	5.5	1.0	2.5	.....	2.7	1.2	2.2	6.5
48	7 45	1 33	8 27b	1 31b	4.0	5.0	2.9	9.4	1.5	3.7	.....	3.9	2.5	3.8	7.0
49	8 25	2 12	9 04b	2 10b	4.7	5.8	3.4	10.5	1.6	4.0	.....	4.3	2.9	4.4	7.0
50	9 15	3 00	9 48b	2 58b	6.6	8.1	4.8	13.5	1.9	4.8	.....	5.1	4.0	5.7	7.0
51	8 50	2 38	9 22b	2 36b	6.5	8.0	4.8	13.1	1.8	4.6	.....	4.9	4.0	5.5	6.0
52	10 15	4 00	10 41b	3 59b	10.9	13.5	8.0	19.6	2.4	6.0	.....	6.5	6.8	8.4	5.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.	
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
AUSTRALASIA—Continued.												
AUSTRALIA.												
North Australia.												
		South.	East.	h. m.			Time meridian, 135° East.		Mean Low Water Springs.			
		°	°				h. m.	h. m.	feet.	feet.		
1	Turtle Point, Victoria River.....	14 50	129 14	8 37	Bombay.....	251	- 4 11	- 4 05	+ 6.4	+6.2	1.72	
2	Pearce Point.....	14 23	129 20	8 37	Bombay.....	251	- 4 26	- 4 26	+10.4	+0.6	2.12	
3	Port Keats.....	14 05	129 37	8 38	Bombay.....	251	- 5 27	- 5 21	+ 9.4	+0.6	2.02	
4	Port Patterson.....	12 39	130 25	8 42	Bombay.....	251	- 7 26	- 7 23	+ 4.8	0.0	1.54	
5	Port Darwin.....	12 23	130 37	8 42	Bombay.....	251	- 6 19	- 6 05	+ 5.0	0.0	1.58	
6	Adelaide River Entrance.....	12 10	131 13	8 45	Bombay.....	251	- 6 04	- 5 59	+ 4.8	0.0	1.55	
7	Port Essington.....	11 11	132 07	8 48	Bombay.....	251	- 7 22	- 7 17	+ 1.2	-0.4	1.18	
8	Liverpool River Entrance.....	12 00	134 15	8 57	Bombay.....	251	- 5 14	- 5 08	+ 0.4	-0.4	1.11	
9	Cape Wilberforce.....	11 54	136 84	9 06	Bombay.....	251	- 8 41	- 8 35	- 1.6	-0.6	0.99	
10	Sir Edward Pellew Islands.....	15 34	137 01	9 08	Nagasaki.....	175	- 1 04	- 1 08	- 1.1	-0.3	0.87	
Queensland.												
							Time meridian, 150° East.					
							h. m.	h. m.	feet.	feet.		
11	Kimberly.....	17 27	140 56	9 24	Nagasaki.....	175	+10 19	+10 14	+ 0.8	0.0	1.13	
12	Booby Island, Torres Strait.....	10 36	141 55	9 28	Cape Horn.....	131	-11 34	-11 37	+ 2.6	+0.4	1.56	
13	Cape York, Torres Strait.....	10 43	142 31	9 30	Cape Horn.....	131	+ 9 54	+ 9 51	+ 2.7	+0.5	1.52	
14	Murray Islands, Torres Strait.....	9 57	144 02	9 36	Cape Horn.....	131	+ 5 38	+ 5 35	+ 4.3	+0.5	1.90	
15	Cape Sldmouth.....	13 24	143 36	9 34	Cape Horn.....	131	+ 5 25	+ 5 24	+ 4.2	+0.6	1.84	
16	Cooktown.....	15 27	145 15	9 41	Cape Horn.....	131	+ 6 02	- 6 24	+ 0.4	+0.4	0.98	
17	Cairns Harbor.....	16 55	145 47	9 43	Cape Horn.....	131	+ 6 00	- 6 26	+ 1.0	+0.6	1.07	
18	Townsville.....	19 15	146 50	9 47	Cape Horn.....	131	+ 6 01	+ 6 01	+ 3.4	+0.6	1.69	
19	Bowen, Port Denison.....	20 01	148 15	9 58	Cape Horn.....	131	+ 6 10	+ 6 10	+ 3.6	+0.6	1.74	
20	Mackay, Pioneer River.....	21 09	149 16	9 57	Cape Horn.....	131	+ 7 01	+ 7 01	+10.7	+1.3	3.24	
21	Rockhampton, Fitzroy River.....	23 22	150 32	10 02	Cape Horn.....	131	+ 7 41	+ 7 41	+ 4.2	+0.6	1.88	
22	Bundaberg, Burnett River.....	24 45	152 18	10 09	Cape Horn.....	131	+ 5 04	+ 5 01	+ 3.5	+0.5	1.77	
23	Brisbane Bar.....	27 31	153 00	10 12	Cape Horn.....	131	+ 5 46	- 6 39	+ 0.8	+0.2	1.12	
New South Wales.												
24	Ballina.....	28 52	153 33	10 14	Sydney.....	223	+ 0 07	+ 0 25	- 1.2	-0.2	0.68	
25	Southhead, Clarence River.....	29 25	153 23	10 14	Sydney.....	223	- 0 40	- 0 42	- 0.2	0.0	0.85	
26	Port Macquarie.....	31 25	152 56	10 12	Sydney.....	223	+ 0 07	+ 0 06	- 0.2	0.0	0.88	
27	Crowdy Head.....	31 51	152 46	10 11	Sydney.....	223	+ 0 13	+ 0 14	+ 0.6	0.0	1.18	
28	Port Stephens.....	32 45	152 13	10 09	Sydney.....	223	- 0 35	- 0 37	+ 1.5	+0.1	1.42	
29	Newcastle.....	32 57	151 44	10 07	Sydney.....	223	- 0 06	- 0 13	0.0	0.0	1.00	
30	SYDNEY.....	33 52	151 12	10 05	Sydney.....	223	0 00	0 00	0.0	0.0	1.00	
31	Botany Bay.....	33 59	151 09	10 05	Sydney.....	223	- 0 46	- 0 36	+ 2.6	+0.2	1.69	
32	Ulladulla Harbor.....	35 22	150 31	10 02	Sydney.....	223	- 0 23	- 0 23	+ 1.1	+0.1	1.30	
33	Montagu Island.....	36 15	150 14	10 01	Sydney.....	223	- 0 22	- 0 22	+ 1.0	0.0	1.27	
34	Eden, Twofold Bay.....	37 05	149 55	10 00	Sydney.....	223	- 0 36	- 0 36	+ 0.9	+0.1	1.24	
Victoria.												
35	Gabo Island.....	37 35	149 55	10 00	Sydney.....	223	- 0 01	- 0 01	+ 0.4	-0.2	1.15	
36	Entrance to Gippsland lakes.....	37 48	148 32	9 54	Sydney.....	223	- 0 15	- 0 15	- 1.1	-0.3	0.77	
37	Corner Inlet.....	38 43	146 35	9 46	Melbourne.....	227	- 2 12	- 2 24	+ 5.0	+0.2	3.57	
38	Venus Bay.....	38 41	145 46	9 43	Melbourne.....	227	- 2 52	- 3 04	+ 4.2	+0.2	3.29	
39	Port Western.....	38 31	145 22	9 41	Melbourne.....	227	- 2 09	- 2 20	+ 6.2	+0.2	4.47	
40	Sorrents Back Beach (Ocean Beach).....	38 22	144 46	9 39	Melbourne.....	227	- 3 39	- 4 44	+ 5.0	+0.2	3.82	
41	Nepean Point, Port Phillip.....	38 15	144 39	9 39	Melbourne.....	227	- 3 51	- 4 03	+ 0.4	0.0	1.29	
42	Geelong, Port Phillip.....	38 07	144 26	9 38	Melbourne.....	227	- 0 06	- 0 12	+ 1.0	0.0	1.59	
43	MELBOURNE (Williamstown).....	37 52	144 54	9 40	Melbourne.....	227	0 00	0 00	0.0	0.0	1.00	
44	Warrnambool Harbor, Lady Bay.....	38 23	142 26	9 30	Melbourne.....	227	- 1 33	- 1 44	+ 0.8	0.0	1.47	
45	Portland Bay.....	38 20	141 37	9 26	Melbourne.....	227	- 1 36	- 1 45	+ 0.8	0.0	1.41	
Tasmania and Bass Strait.												
46	Currie Harbor, King Island.....	39 57	143 51	9 35	Melbourne.....	227	- 1 30	- 1 39	+ 0.8	0.0	1.47	
47	Port Dalrymple.....	41 03	146 49	9 47	Melbourne.....	227	- 3 32	- 3 41	+ 6.6	+0.4	4.71	
48	Goose Island, Banks Strait.....	40 19	147 48	9 51	Melbourne.....	227	- 4 08	- 4 20	+ 5.8	+0.2	4.24	
49	Hobart.....	42 53	147 21	9 49	Melbourne.....	227	- 6 39	- 6 51	+ 2.1	+0.2	2.15	
50	Macquarie Harbor.....	42 12	145 13	9 41	Melbourne.....	227	- 7 16	- 7 28	+ 0.8	0.0	1.43	
South Australia.												
							Time meridian, 135° East.					
							h. m.	h. m.	feet.	feet.		
51	Port Macdonnel.....	38 04	140 40	9 23	Port Adelaide.....	231	- 5 13	- 5 17	- 2.1	-0.4	0.62	
52	Kingston.....	36 50	139 51	9 19	Port Adelaide.....	231	- 5 09	- 5 15	- 2.0	-0.4	0.64	
53	Cape Willoughby, Kangaroo I.....	35 51	138 10	9 13	Port Adelaide.....	231	- 1 05	- 1 07	- 1.3	-0.2	0.77	
54	PORT ADELAIDE.....	34 51	138 30	9 14	Port Adelaide.....	231	0 00	0 00	0.0	0.0	1.00	
55	Port Wakefield.....	34 12	138 09	9 13	Port Adelaide.....	231	+ 0 48	- 1 00	+ 2.1	+0.3	1.40	
56	Port Victoria, Spencer Gulf.....	34 30	137 28	9 10	Port Adelaide.....	231	- 2 35	- 2 40	- 2.2	-0.4	0.66	
57	Port Wallaroo, Spencer Gulf.....	33 55	137 37	9 10	Port Adelaide.....	231	+ 0 30	+ 0 32	- 2.8	-0.4	0.57	
58	Port Pirie, Spencer Gulf.....	33 06	138 00	9 12	Port Adelaide.....	231	+ 2 42	+ 2 46	+ 0.7	+0.2	1.12	
59	Port Augusta, Spencer Gulf.....	32 28	137 46	9 11	Port Adelaide.....	231	+ 3 15	+ 2 27	+ 2.7	+0.4	1.50	
60	Coffin Bay.....	34 26	135 22	9 01	Port Adelaide.....	231	- 4 30	- 4 27	- 1.7	-0.4	0.72	
61	Port Eyre.....	31 57	132 30	8 50	Port Adelaide.....	231	- 5 15	- 5 20	- 1.7	-0.4	0.72	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i>
1	7 00	0 48	7 22b	0 47b	15.1	18.6	11.0	25.3	2.8	7.1	.....	7.6	9.3	11.2	2.5
2	6 45	0 27	7 05b	0 26b	18.6	23.0	13.6	29.9	3.1	7.9	.....	8.5	11.5	18.2	2.5
3	5 45	11 58	6 05b	11 57a	17.7	21.9	12.9	28.8	3.1	7.7	.....	8.3	11.0	12.6	2.5
4	3 50	10 00	4 13b	9 59a	13.5	16.7	9.9	23.2	2.7	6.7	.....	7.2	8.4	10.2	2.5
5	4 57	11 18	5 20b	11 17a	13.8	17.0	10.0	23.6	2.7	6.8	.....	7.3	8.5	10.3	2.5
6	5 15	11 27	5 38b	11 26a	13.6	16.8	9.9	23.4	2.7	6.8	.....	7.3	8.4	10.2	2.5
7	4 00	10 12	4 26b	10 11a	10.3	12.7	7.5	18.8	2.3	5.9	.....	6.3	6.4	8.2	2.5
8	6 17	0 06	6 44b	0 04b	9.7	12.0	7.1	18.2	2.3	6.0	.....	6.1	6.0	7.6	3.0
9	8 00	1 48	8 30b	1 47b	7.9	9.8	5.8	15.3	2.1	5.1	.....	5.5	4.9	6.6	3.5
10	7 15	1 03	7 52b	1 01b	5.4	6.6	4.0	11.5	1.7	4.2	.....	4.6	3.3	4.8	4.0
11	5 30	11 42	6 02b	11 41b	7.0	8.7	5.1	14.0	2.0	4.8	.....	5.2	4.4	5.9	5.0
12	4 20	10 30	4 15b	10 49b	6.8	7.8	4.7	7.5	2.1	0.6	.....	2.1	3.9	3.4	4.5
13	1 00	7 10	0 55b	7 30b	6.4	8.0	4.7	7.6	2.1	0.6	.....	2.2	4.0	3.5	5.0
14	9 15	3 00	9 10a	3 17b	8.0	9.7	5.9	9.3	2.3	0.7	.....	2.4	4.8	4.4	5.0
15	9 00	2 47	8 55a	2 59b	7.8	9.6	5.8	9.1	2.3	0.7	.....	2.4	4.8	4.3	5.5
16	9 44	8 31	9 44a	8 13a	4.1	5.5	2.3	4.7	1.2	0.1	9 43	1.2	2.8	2.1	6.0
17	9 44	3 31	10 04a	3 08a	4.5	6.4	1.9	6.0	2.1	1.6	12 10	2.6	3.2	2.9	6.5
18	9 50	3 38	9 45a	3 57b	7.1	8.7	5.3	8.4	2.2	0.7	.....	2.3	4.4	3.9	7.0
19	10 05	3 53	10 00a	4 12b	7.3	9.0	5.4	8.6	2.2	0.7	.....	2.3	4.5	4.0	7.0
20	11 00	4 48	10 56a	5 01b	13.6	16.8	10.0	15.3	3.0	0.9	.....	3.1	8.4	7.8	7.5
21	11 45	5 38	11 40a	5 50b	7.9	9.7	5.9	9.2	2.3	0.7	.....	2.4	4.8	4.0	8.0
22	9 15	3 00	9 10a	3 19b	7.2	8.9	5.3	8.5	2.2	0.7	.....	2.3	4.4	4.0	8.5
23	10 00	3 48	10 05a	8 22a	4.7	5.8	3.8	5.5	1.9	0.4	10 46	1.9	2.9	2.4	9.0
24	9 02	3 07	9 08a	2 24a	2.3	2.8	1.8	3.1	1.6	0.2	9 41	1.6	1.4	1.2	9.5
25	8 15	2 00	8 07a	2 27b	3.2	4.0	2.4	4.0	1.5	0.4	.....	1.5	2.0	1.8	9.5
26	9 00	2 46	8 53a	3 12b	3.3	4.1	2.4	4.2	1.5	0.5	.....	1.5	2.0	1.9	9.5
27	9 05	2 53	8 59a	3 16b	4.0	4.9	3.0	4.9	1.6	0.5	.....	1.6	2.4	2.3	9.5
28	8 15	2 00	8 09a	2 23b	4.8	5.8	3.6	5.9	1.8	0.6	.....	1.9	2.9	2.7	9.5
29	8 42	2 22	8 32a	2 51b	3.4	4.2	2.5	4.2	1.6	0.6	7 07	1.6	2.1	1.9	9.5
30	8 46	2 33	8 37a	3 00b	3.4	4.2	2.6	4.3	1.5	0.5	7 21	1.5	2.1	1.9	9.5
31	8 00	1 57	7 54a	2 17b	5.7	7.0	4.2	6.8	2.0	0.6	.....	2.0	3.5	3.2	9.5
32	8 20	2 07	8 13a	2 31b	4.4	5.4	3.3	5.4	1.7	0.5	.....	1.8	2.7	2.5	9.5
33	8 20	2 07	8 13a	2 31b	4.3	5.3	3.2	5.3	1.7	0.5	.....	1.8	2.6	2.4	10.0
34	8 05	1 52	7 59a	2 15b	4.2	5.2	3.1	5.2	1.7	0.5	.....	1.7	2.6	2.4	9.5
35	8 40	2 27	8 34a	2 50b	4.0	4.5	3.4	5.0	1.7	0.5	.....	1.6	2.2	2.1	10.0
36	8 20	2 07	8 12a	2 36b	2.6	2.9	2.2	3.5	1.4	0.3	.....	1.3	1.4	1.4	9.0
37	0 04	6 16	0 22a	6 13b	6.4	7.2	5.5	7.8	0.4	2.0	.....	2.0	3.6	3.3	8.5
38	11 46	5 33	12 06b	5 30b	5.6	6.8	4.8	6.9	0.4	1.8	.....	1.9	3.2	3.7	8.0
39	0 02	6 15	0 19a	6 12b	7.6	8.5	6.5	9.1	0.4	2.2	.....	2.2	4.2	4.9	8.0
40	10 55	3 49	11 13b	3 46b	6.5	7.3	5.7	7.7	0.4	2.0	.....	2.0	3.6	4.2	8.0
41	10 43	4 30	11 11b	4 26b	2.2	2.5	1.9	3.0	0.2	1.2	.....	1.1	1.2	1.7	8.0
42	2 02	8 20	2 29a	8 16b	2.7	3.0	2.3	3.6	0.2	1.3	.....	1.3	1.5	2.0	7.5
43	2 10	8 34	3 02a	8 17b	1.7	2.0	1.6	2.5	0.3	1.0	7 45	1.2	1.0	1.4	8.0
44	0 27	6 40	0 57a	6 35b	2.5	2.8	2.2	3.3	0.2	1.2	.....	1.3	1.4	1.8	7.0
45	0 20	6 35	0 48a	6 31b	2.4	2.7	2.1	3.2	0.2	1.2	.....	1.2	1.4	1.8	6.5
46	0 35	6 50	1 05a	6 45b	2.5	2.8	2.2	3.3	0.2	1.2	.....	1.3	1.4	1.8	7.5
47	11 10	5 00	11 25b	4 58b	8.0	9.0	6.9	9.5	0.4	2.2	.....	2.2	4.5	5.1	9.0
48	10 38	4 25	10 55b	4 22b	7.2	8.1	6.2	8.7	0.4	2.1	.....	2.1	4.0	4.6	9.0
49	8 05	1 52	8 28b	1 48b	3.7	4.2	3.2	4.7	0.3	1.5	.....	1.5	2.1	2.6	9.5
50	7 20	1 07	7 48b	1 03b	2.4	2.7	2.1	3.2	0.2	1.2	.....	1.2	1.4	1.8	8.5
51	11 25	5 14	11 11b	6 06a	2.8	3.9	0.6	3.7	2.1	0.6	.....	2.2	2.0	1.5	6.0
52	11 25	5 12	11 11b	6 03a	2.9	4.0	0.6	3.8	2.2	0.6	.....	2.2	2.0	1.6	6.0
53	2 58	9 14	2 45a	10 01a	3.4	4.7	0.7	4.4	2.3	0.7	.....	2.4	2.4	1.8	5.0
54	4 04	10 22	3 53a	11 03a	4.5	6.3	0.9	5.6	2.7	0.8	2 53	2.8	3.2	2.4	5.0
55	4 51	9 21	4 42a	9 56a	6.3	8.8	1.3	7.6	3.2	0.9	.....	3.3	4.4	3.3	5.0
56	1 25	7 38	1 11a	8 31a	2.7	3.8	0.5	3.5	2.1	0.6	.....	2.2	1.9	1.5	5.0
57	4 30	10 50	4 15a	11 45a	2.6	3.6	0.5	3.4	2.0	0.6	.....	2.1	1.8	1.4	5.0
58	6 44	0 41	6 34a	1 20b	5.0	7.1	1.0	6.2	2.9	0.8	.....	3.0	3.6	2.7	5.0
59	7 16	0 21	7 07a	0 55b	6.8	9.4	1.4	8.1	3.3	1.0	.....	3.4	4.7	3.6	5.0
60	11 46	5 42	11 33b	6 30b	3.2	4.5	0.6	4.1	2.3	0.7	.....	2.4	2.2	1.7	4.0
61	10 49	4 37	10 36b	5 25a	3.2	4.5	0.6	4.1	2.3	0.7	.....	2.4	2.2	1.7	3.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.	Page.	Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.			Time.		Height.		
						HW.	LW.	HW.	LW.	
AUSTRALASIA—Continued.										
AUSTRALIA—continued.										
Western Australia.										
		South.	East.			Time meridian, 120° East.		Mean Low Water Springs.		
		° ' "	° ' "	h. m.		h. m.	h. m.	feet.	feet.	
1	Princess Royal Har., K. Geo. Sd.	35 08	118 00	7 52	Batavia	199	+12 52	+12 52	-0.1	+0.5
2	Albany, King George Sound	35 01	117 54	7 52	Batavia	199	+12 30	+11 15	+0.3	+0.5
3	Freemantle, Swan River Entrance	32 03	115 45	7 43	Batavia	199	+11 16	+11 48	-0.2	+0.4
4	Champion Bay	28 47	114 35	7 38	Batavia	199	+10 29	+9 44	+0.7	+0.5
5	Port Walcott	20 39	117 13	7 49	Bombay	251	+0 09	+0 07	+5.6	0.0
6	Collier Bay	16 23	124 25	8 18	Bombay	251	-0 04	-0 13	+20.7	+1.7
7	Cambridge Bay	15 00	128 10	8 33	Bombay	251	+8 24	+8 27	+10.2	-0.6
ASIA (SOUTH COAST).										
INDIA.										
Bay of Bengal, east coast.										
		North.				Local time.				
8	Mergui	12 26	98 36	6 34	Rangoon	235	+6 14	+5 28	+1.4	+1.2
9	Reef Island, Tavoy River Entr.	13 36	98 13	6 33	Rangoon	235	+6 24	+5 38	-0.7	-0.9
10	Yé, Yé River	15 15	97 53	6 32	Rangoon	235	+7 19	+6 33	+1.4	+1.2
11	Amherst, Moulmein River	16 05	97 34	6 30	Rangoon	235	+10 11	+10 07	+2.4	+1.4
12	Moulmein, Moulmein River	16 29	97 37	6 30	Calcutta	239	+1 52	+1 08	+1.0	+0.4
13	Elephant Point, Rangoon River	16 30	96 18	6 25	Rangoon	235	-0 57	-1 04	+1.5	+1.1
14	RANGOON, Rangoon River	16 46	96 10	6 25	Rangoon	235	0 00	0 00	0.0	0.0
15	Bassein River Entrance	16 00	94 20	6 17	Rangoon	235	-1 21	-1 12	+2.2	+1.2
16	Akyab	20 08	92 54	6 12	Calcutta	239	-4 00	-6 13	-2.5	-0.1
17	Chittagong	22 20	91 50	6 07	Calcutta	239	-0 12	-1 44	+2.3	+0.7
Bay of Bengal, west coast.										
18	Dublat, Hoogly River	21 38	88 06	5 52	Calcutta	239	-3 41	-5 46	+3.0	+0.8
19	Diamond Harbor, Hoogly River	22 11	88 12	5 53	Calcutta	239	-2 17	-3 22	+4.6	+1.2
20	CALCUTTA (Kidderpore), Hoogly R.	22 33	88 19	5 53	Calcutta	239	0 00	0 00	0.0	0.0
21	False Point	20 23	86 47	5 47	Madras	243	+0 45	+0 33	+3.2	+0.4
22	Vizagapatam	17 41	83 17	5 33	Madras	243	+0 13	+0 08	+1.1	+0.1
23	Cocanada	16 56	82 15	5 29	Madras	243	+0 07	+0 09	+1.1	0.0
24	MADRAS	13 06	80 18	5 21	Madras	243	0 00	0 00	0.0	0.0
25	Negapatam	10 46	79 51	5 19	Madras	243	+0 02	+0 11	-1.0	-0.2
26	Pamban Pass, Ramesvaram Island	9 16	79 09	5 17	Colombo	247	-0 10	-0 11	0.0	0.0
27	Tuticorin	8 48	78 09	5 13	Colombo	247	+0 05	+0 04	+0.8	+0.2
Bay of Bengal Islands.										
28	Trincomalee, Ceylon	8 33	81 13	5 25	Colombo	247	-6 02	-6 03	0.0	0.0
29	Point de Galle, Ceylon	6 02	80 13	5 21	Colombo	247	+0 15	+0 20	-0.1	+0.1
30	COLOMBO, Ceylon	6 56	79 51	5 19	Colombo	247	0 00	0 00	0.0	0.0
31	Port Blair, Andaman Islands	11 41	92 45	6 11	St. Johns	47	-9 53	-9 56	+2.4	+0.6
32	Port Cornwallis, Andaman Islands	13 19	93 00	6 12	St. Johns	47	-9 43	-9 46	+4.3	+0.9
33	Nankauri Harbor, Nicobar Islands	8 03	93 30	6 14	St. Johns	47	-10 28	-10 31	+4.1	+0.9
Arabian Sea, east coast.										
34	Quilon	8 54	76 37	5 06	Yokohama	171	-4 39	-4 46	-2.2	-0.8
35	Cochin	9 58	76 15	5 05	Yokohama	171	-5 49	-5 56	-2.6	-0.8
36	Beypore	11 10	75 48	5 03	Yokohama	171	-6 00	-6 02	-2.0	-0.6
37	Mangalore	12 52	74 50	4 59	Yokohama	171	-6 31	-6 33	+1.3	-0.3
38	Karwar	14 48	74 06	4 56	Karachi	255	+0 19	+0 12	-2.0	-0.2
39	Goa, or Mormugoa	15 25	73 48	4 55	Karachi	255	+0 19	+0 11	-1.8	-0.2
40	BOMBAY, Apollo Bandar	18 55	72 50	4 51	Bombay	251	0 00	0 00	0.0	0.0
41	Bhavnagar	21 48	72 09	4 49	Shanghai	183	+4 22	+3 19	+18.8	+3.0
42	Port Albert Victor (Kathiawadar)	20 58	71 33	4 46	Karachi	255	+4 11	+3 44	+1.8	+0.6
43	Okha Point and Bet Harbor	22 28	69 05	4 36	Bombay	251	+0 39	+0 31	-0.9	-0.3
44	Navanar Point, Gulf of Cutch	22 44	69 43	4 39	Bombay	251	+1 45	+1 56	+3.9	-0.3
45	Handthal Point, Gulf of Cutch	22 56	70 21	4 41	Bombay	251	+2 23	+3 12	+5.2	-0.4
46	KARACHI	24 48	66 58	4 28	Karachi	255	0 00	0 00	0.0	0.0
Arabian Sea Islands.										
47	Suvadiva Atoll, Maldivé Islands	0 34	73 27	4 54	Karachi	255	+3 00	+2 56	-3.0	-0.4
48	S. Male Atoll, Maldivé Islands	4 05	73 30	4 54	Karachi	255	+2 30	+2 26	-3.9	-0.5
49	Malcolm Atoll, Maldivé Islands	6 17	72 33	4 50	Karachi	255	+0 05	+0 01	-4.0	-0.4
50	Minikoi Light	8 16	73 01	4 52	Karachi	255	+1 12	+1 16	-4.2	-0.6
51	Kiltan Island, Laccadive Islands	11 29	73 00	4 52	Karachi	255	+0 05	+0 01	-0.8	0.0
52	Cherbaniani Reef, Laccadive Ids.	12 20	71 52	4 47	Karachi	255	-0 25	-0 29	-1.0	0.0
BALUCHISTAN.										
53	Sunmivani Harbor	25 25	66 35	4 26	Karachi	255	-1 24	-1 23	+0.7	+0.1
54	Gwadar Bay	25 10	62 20	4 09	Karachi	255	-0 53	-0 52	+0.6	+0.2

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>
1	[11 43]	[5 18]	10 17b	8 11a	[0.6]	[0.9]	[0.2]	2.2	.....	.....	21 57	2.1	1.1	1.0	4.0
2	[10 53]	[4 40]	9 55b	6 34a	[0.5]	[1.2]	[0.1]	2.6	.....	.....	.....	2.6	1.3	1.3	4.0
3	[10 16]	[3 43]	8 32b	6 58a	[0.4]	[0.7]	[0.0]	2.1	.....	.....	20 13	2.1	1.0	1.1	4.0
4	[8 50]	[2 30]	7 40b	4 49a	[0.6]	[1.5]	[0.1]	3.0	.....	.....	.....	3.0	1.5	1.5	3.0
5	11 30	5 10	11 52b	5 09a	14.3	17.6	10.4	24.2	2.8	6.9	.....	7.4	8.8	10.6	0.0
6	11 35	5 20	11 51b	5 19a	27.8	34.3	20.3	41.7	3.8	9.6	.....	10.4	17.2	18.7	2.0E.
7	8 06	1 50	8 25b	1 49a	18.4	22.7	13.4	29.6	3.1	7.7	.....	8.5	11.4	13.1	2.5E.
8	10 40	4 10	10 34a	4 18b	13.0	18.0	6.9	12.2	1.6	1.3	.....	2.0	9.0	6.0	3.0
9	10 50	4 20	10 43a	4 29b	11.2	15.6	5.9	10.4	1.5	1.2	.....	1.9	7.8	5.2	3.0
10	11 45	5 15	11 39a	5 23b	13.0	18.1	6.9	12.2	1.6	1.8	.....	2.0	9.0	6.0	3.0
11	2 12	8 49	2 06b	8 57b	13.9	19.2	7.4	13.0	1.6	1.4	11 52	2.1	9.6	6.5	3.0
12	3 07	10 49	3 06a	11 01a	8.6	11.7	5.0	8.3	1.4	0.3	3 11	1.4	5.8	4.1	3.0
13	3 29	10 08	3 22a	10 11a	13.2	18.1	7.3	12.7	1.7	1.4	0 51	2.2	9.0	6.3	3.0
14	4 26	11 07	4 20a	11 15a	12.8	15.5	9.3	12.8	1.7	1.3	2 07	2.0	7.7	6.3	3.0
15	3 05	9 55	3 00a	10 03a	13.7	18.7	7.8	13.9	1.7	1.1	.....	2.1	9.4	6.6	3.0
16	9 40	3 28	9 46b	3 13b	5.6	7.6	3.0	5.6	1.2	0.5	23 19	1.3	3.3	2.7	3.0
17	1 02	7 56	1 02a	7 44b	9.6	13.1	5.6	9.8	1.8	0.2	1 12	1.8	6.6	4.6	3.0
18	9 58	3 54	10 01b	3 46b	10.1	14.1	5.1	9.5	1.3	0.5	23 36	1.4	7.0	4.6	3.0
19	11 22	6 18	11 23b	6 10a	11.4	15.9	5.9	10.5	1.4	0.3	12 19	1.5	8.0	5.1	3.0
20	1 14	9 40	1 18a	9 51a	8.0	10.2	5.2	7.6	1.2	0.2	2 85	1.2	5.1	3.6	3.0
21	9 21	3 00	9 27b	2 46b	4.9	6.8	2.6	5.1	1.1	0.5	23 13	1.2	3.4	2.5	3.0
22	8 48	2 34	8 56b	2 16b	3.2	4.4	1.8	3.5	0.9	0.5	23 03	1.0	2.2	1.7	2.0
23	8 42	2 35	8 52b	2 18b	3.3	4.5	1.9	3.6	0.9	0.5	22 59	1.0	2.2	1.6	2.0
24	8 35	2 26	8 46b	2 06b	2.2	3.1	1.2	2.6	0.7	0.4	22 53	0.8	1.5	1.2	1.0
25	8 37	2 37	8 49b	2 14b	1.5	2.1	0.9	1.8	0.6	0.3	22 58	0.6	1.0	0.9	1.0
26	1 37	7 36	1 53a	6 54b	1.4	2.0	0.5	1.6	0.8	0.3	8 07	0.8	1.0	0.7	0.5
27	1 52	7 51	2 05a	7 16b	2.1	3.0	0.8	2.4	1.0	0.4	.....	1.1	1.5	1.1	0.5
28	8 10	1 44	8 26b	1 01b	1.4	2.0	0.5	1.7	0.8	0.3	.....	0.9	1.0	0.8	1.0
29	2 02	8 07	2 11a	7 41b	1.2	1.9	0.4	1.2	0.4	0.2	3 19	0.4	1.0	0.6	0.5
30	1 47	7 47	1 59a	7 19b	1.4	2.0	0.5	1.8	0.6	0.3	3 15	0.7	1.0	0.8	0.5
31	9 40	3 27	9 38b	3 45a	4.4	6.3	2.1	4.6	1.1	0.2	21 33	1.1	3.2	2.0	2.5
32	9 50	3 37	9 49b	3 52a	6.0	8.6	2.9	6.3	1.3	0.2	.....	1.3	4.3	2.8	2.5
33	9 05	2 52	9 04b	3 07a	5.8	8.3	2.8	6.1	1.3	0.2	.....	1.3	4.2	2.7	2.0
34	0 18	6 16	1 19a	5 58b	2.0	2.5	1.3	3.2	0.7	1.9	.....	2.1	2.2	1.9	0.5
35	11 33	5 06	12 39b	4 44b	1.6	2.1	1.0	2.7	0.6	1.7	3 44	1.9	1.0	1.6	0.5
36	11 21	4 59	12 20b	4 41b	2.1	2.7	1.4	3.4	0.7	2.0	3 42	2.1	1.4	2.0	0.5
37	10 50	4 28	11 28b	4 16b	5.1	6.5	3.4	7.1	1.1	3.1	.....	3.4	3.2	4.0	0.5
38	10 34	4 11	11 24b	4 00b	3.8	5.0	2.4	5.4	0.7	3.0	8 13	3.1	2.5	3.2	0.5
39	10 34	4 10	11 24b	4 01b	4.0	5.2	2.5	5.5	0.7	3.1	3 17	3.2	2.6	3.4	0.5
40	11 27	5 07	11 53b	4 54b	8.8	11.9	4.9	11.0	2.1	3.8	3 12	4.2	6.0	5.9	1.0
41	4 27	11 18	4 33a	11 01b	23.0	29.8	15.1	25.6	6.3	2.3	6 57	6.7	14.9	11.9	1.0
42	2 01	7 43	2 27a	7 09b	6.8	9.5	3.7	9.3	3.7	2.9	4 31	4.8	4.8	4.5	1.0
43	12 05	5 39	12 33b	5 25b	8.2	10.8	5.2	10.6	2.0	3.8	3 46	4.3	5.4	5.7	1.0
44	0 46	7 04	1 02a	6 51b	13.0	15.5	9.8	15.4	2.8	3.6	4 24	4.5	7.8	7.9	1.0
45	1 24	8 20	1 41a	8 06b	14.5	16.8	11.6	16.5	2.5	3.4	5 20	4.6	8.4	8.5	1.0
46	10 14	3 58	11 00b	3 50b	5.6	7.4	3.5	7.5	0.8	4.0	3 11	4.0	3.7	4.4	1.0
47	0 50	6 55	1 34a	6 36b	2.9	3.8	1.8	4.3	1.0	2.1	.....	2.6	1.9	2.4	1.0
48	0 20	6 25	1 10a	6 04b	2.2	2.9	1.4	3.4	0.8	1.8	.....	2.2	1.4	1.9	0.5
49	10 20	4 00	11 12b	3 38b	2.1	2.7	1.3	3.3	0.8	1.8	.....	2.2	1.4	1.8	0.5
50	11 27	5 15	12 22b	4 51b	1.9	2.5	1.2	3.0	0.8	1.7	3 50	2.1	1.2	1.7	0.0
51	10 20	4 00	10 54b	3 46b	4.8	6.3	3.0	6.5	1.2	2.6	.....	3.3	3.2	3.5	0.0
52	9 50	3 30	10 26b	3 15b	4.7	6.2	2.9	6.5	1.2	2.6	.....	3.3	3.1	3.4	0.0
53	8 50	2 35	9 35b	2 30b	6.2	8.1	3.8	8.2	0.8	4.1	.....	4.2	4.0	4.8	1.0
54	9 20	3 05	10 08b	2 59b	6.1	8.1	3.7	8.3	0.7	4.5	.....	4.5	4.0	5.0	1.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
ASIA (SOUTH COAST)—Continued.											
PERSIA.											
Persian Gulf.											
		North.	East.				Local time.		Mean Low Water Springs.		
		° ' "	° ' "	A. M.			A. M.	A. M.	feet.	feet.	
1	Jashak Bay.....	25 40	57 50	3 51	Karachi.....	255	- 0 58	- 0 52	+0.4	+0.2	1.06
2	Kishm.....	26 56	56 15	3 45	Karachi.....	255	+ 0 37	+ 0 38	+3.8	+0.6	1.57
3	Jezirat Kaia.....	26 32	58 54	3 36	Hongkong.....	191	- 9 45	- 8 33	+1.6	-0.4	1.60
4	Bushire.....	29 00	50 52	3 23	Hongkong.....	191	- 2 08	- 1 35	-2.0	-0.8	0.64
5	Euphrates River Entrance.....	29 51	48 45	3 15	Hongkong.....	191	+ 2 06	+ 3 13	+4.2	-0.2	2.34
ARABIA.											
Persian Gulf.											
6	Kuweit.....	29 24	47 58	3 12	Hongkong.....	191	+ 3 16	+ 3 30	+3.2	-0.2	2.06
7	Menama, Bahrein Harbor.....	26 16	50 39	3 23	Hongkong.....	191	- 4 00	- 3 43	+1.4	-0.4	1.57
8	Maskat (Muscat).....	23 37	58 35	3 54	Karachi.....	255	- 0 48	- 0 37	-1.1	-0.1	0.82
Outer coast.											
9	Ras-al-Hadd.....	22 34	59 50	3 59	Karachi.....	255	- 0 58	- 0 54	+1.4	+0.2	1.21
10	Masira Island.....	20 28	58 57	3 56	Karachi.....	255	- 0 28	- 0 25	+2.0	+0.4	1.30
11	Merbat.....	17 00	54 41	3 39	Aden.....	259	+ 1 01	+ 1 00	+1.9	+0.3	1.44
12	Makalla.....	14 32	49 06	3 16	Aden.....	259	+ 0 31	+ 0 29	+1.7	+0.3	1.58
13	ADEN.....	12 47	44 59	3 00	Aden.....	259	0 00	0 00	0.0	0.0	1.00
Red Sea, east coast.											
14	Mocha or Mokha.....	18 19	48 12	2 58	Aden.....	259	+ 3 57	+ 3 56	-0.4	0.0	0.97
15	Lohelya.....	15 45	42 40	2 51	Aden.....	259	+ 5 52	+ 5 50	-1.7	-0.3	0.87
16	Jidda.....	21 28	39 08	2 37	Aden.....	259	+ 8 08	+ 8 06	-2.4	-0.4	0.47
17	Hassani Island.....	25 00	37 00	2 28	Aden.....	259	+10 23	+10 21	-1.4	-0.2	0.64
18	Akabah.....	29 30	35 00	2 20	Aden.....	259	-10 12	-10 13	-0.8	0.0	0.40
AFRICA (EAST COAST).											
EGYPT, ABYSSINIA, ETC.											
Red Sea, west coast.											
19	Suez.....	29 56	32 33	2 10	Aden.....	259	- 9 26	- 9 28	+1.7	+0.3	1.38
20	Zafarana Light.....	29 06	32 40	2 11	Aden.....	259	- 9 31	- 9 32	+0.6	+0.2	1.13
21	Ras Gharib.....	28 21	33 06	2 12	Aden.....	259	- 9 36	- 9 37	-2.8	-0.4	0.33
22	Brothers Islands.....	26 19	34 51	2 19	Aden.....	259	+11 18	+11 17	-2.4	-0.4	0.41
23	Suakin.....	19 06	37 19	2 29	Aden.....	259	+ 6 48	+ 6 46	-2.8	-0.4	0.36
24	Massaua or Massowah.....	15 37	39 27	2 38	Aden.....	259	+ 5 23	+ 5 21	-0.7	-0.1	0.43
25	Perim Island, Bab el Mandeb Str.....	12 38	43 24	2 54	Aden.....	259	+ 0 02	+ 0 01	+2.0	+0.4	1.46
SOMALILAND.											
26	Zeila.....	11 24	43 28	2 54	Aden.....	259	- 0 18	- 0 19	+3.1	+0.5	1.71
27	Cape Guardafui or Ras Asir.....	11 53	51 15	3 25	Aden.....	259	- 1 49	- 1 51	+1.0	+0.2	1.24
28	Sokotra Island.....	12 40	53 55	3 36	Aden.....	259	- 0 44	- 0 21	+2.4	+0.4	1.35
29	Warsheik Road.....	2 36	46 11	3 05	Aden.....	259	- 3 28	- 3 30	+2.6	+0.4	1.60
30	Brava.....	1 08	44 04	2 56	Aden.....	259	- 3 33	- 3 35	+2.4	+0.4	1.55
ZANZIBAR.											
		South.									
31	Juba.....	0 14	42 38	2 51	Aden.....	259	- 3 31	- 3 33	+3.6	+0.6	1.55
32	Port Durnford.....	1 13	41 55	2 48	Aden.....	259	- 3 18	- 3 20	+6.0	+0.8	2.40
33	Malindi.....	3 07	40 11	2 41	Aden.....	259	- 3 47	- 3 48	+6.3	+0.9	2.49
34	Zanzibar.....	6 09	39 11	2 37	Aden.....	259	- 3 42	- 3 44	+8.4	+1.2	2.96
35	Lindi River Entrance.....	10 00	39 44	2 39	Aden.....	259	- 3 52	- 3 53	+5.2	+0.8	2.24
MOZAMBIQUE.											
36	Cape Delgado.....	10 41	40 39	2 43	Calcutta.....	239	+ 2 51	+ 0 37	+0.4	+0.6	0.99
37	Mozambique Harbor.....	14 58	40 44	2 43	Calcutta.....	239	+ 2 52	+ 0 38	+0.8	+0.8	1.07
38	Zambezi River Entrance.....	18 47	36 30	2 26	Calcutta.....	239	+ 3 08	+ 0 54	+2.4	+1.0	1.75
39	Innamban River Entrance.....	23 45	35 32	2 22	Calcutta.....	239	+ 3 23	+ 1 09	+0.2	+0.6	0.96
40	English River, Delagoa Bay.....	25 59	32 36	2 10	Calcutta.....	239	+ 4 03	+ 1 49	+1.0	+0.8	1.62
ISLANDS IN THE INDIAN OCEAN.											
Madagascar.											
41	Diego Suarez Bay.....	12 15	49 30	3 18	Calcutta.....	239	+ 2 16	+ 0 02	-3.7	-0.1	0.55
42	Port Choiseul, Antongil Bay.....	15 29	49 50	3 19	Calcutta.....	239	+ 2 36	+ 0 22	4.8	-0.2	0.44
43	Tamatave.....	18 08	49 26	3 18	Calcutta.....	239	+ 2 51	+ 0 37	-3.0	0.0	0.62
44	Fort Dauphin.....	25 01	47 01	3 08	Calcutta.....	239	+ 3 07	+ 0 53	-5.1	-0.3	0.43
45	St. Augustine Bay.....	23 34	48 46	2 55	Calcutta.....	239	+ 4 32	+ 2 18	-0.8	+0.4	0.55
46	Bembatooka Bay.....	15 50	46 21	3 05	Calcutta.....	239	+ 3 07	+ 1 54	0.0	+0.6	0.94

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	9 20	3 05	10 09b	2 59b	5.9	7.8	3.6	8.1	0.7	4.4	.....	4.5	3.9	4.8	0.5
2	10 50	4 35	11 30b	4 30b	8.7	11.6	5.3	11.3	0.8	5.3	.....	5.4	5.8	6.6	0.5
3	0 30	6 40	0 17b	7 37b	5.3	6.6	3.8	8.0	4.5	1.2	.....	4.7	3.3	3.4	0.0
4	7 12	1 13	6 51b	2 44b	2.1	2.6	1.5	3.8	2.8	0.7	18 24	3.0	1.3	1.5	0.0
5	11 20	6 00	11 09b	6 48a	7.6	9.4	5.4	10.9	5.4	1.4	.....	5.7	4.7	4.7	0.0
6	0 05	6 17	— 0 07a	7 07a	6.7	8.3	4.8	9.7	4.9	1.3	.....	5.3	4.2	4.2	0.0
7	5 15	11 30	5 01b	12 23b	5.2	6.4	3.7	7.9	4.4	1.2	.....	4.7	3.2	3.4	0.5
8	9 30	3 20	10 26b	3 18b	4.6	6.0	2.8	6.5	0.6	3.9	2 44	3.9	3.0	3.9	0.0
9	9 15	3 08	10 02b	2 57b	6.7	8.9	4.1	9.0	0.7	4.7	.....	4.8	4.4	5.4	0.0
10	9 45	3 32	10 29b	3 27b	7.2	9.6	4.4	9.7	0.8	4.9	.....	4.9	4.8	5.7	0.0
11	8 50	2 38	7 49a	2 50b	5.2	7.0	2.9	7.6	1.0	4.8	.....	4.8	3.5	4.6	1.0
12	8 20	2 07	7 18a	2 19b	5.0	6.8	2.8	7.4	1.0	4.7	.....	4.7	3.4	4.5	2.0
13	7 48	1 37	6 34a	1 50b	3.6	4.8	2.0	5.8	0.9	4.0	2 28	4.0	2.4	3.5	3.0
14	11 45	5 33	10 29a	5 48b	3.3	4.5	1.9	5.2	0.8	3.8	.....	3.8	2.2	3.2	3.5
15	1 15	7 27	— 0 18b	7 45b	2.2	2.9	1.2	3.7	0.7	3.1	.....	3.1	1.4	2.4	3.0
16	3 30	9 42	1 36b	10 04b	1.5	2.0	0.8	3.0	0.6	2.6	.....	2.6	1.0	1.8	3.0
17	5 45	11 57	4 13b	12 15b	2.3	3.1	1.3	3.9	0.7	3.2	.....	3.2	1.6	2.5	3.0
18	10 00	3 48	8 38b	4 04a	2.9	3.9	1.6	4.7	0.8	3.6	.....	3.6	2.0	3.0	3.0
19	10 45	4 32	9 43b	4 44a	5.0	6.8	2.8	7.4	1.0	4.7	.....	4.7	3.4	4.5	3.5
20	10 40	4 28	9 31b	4 42a	4.1	5.5	2.3	6.3	0.9	4.8	.....	4.8	2.8	3.9	3.5
21	10 35	4 23	8 23b	4 49a	1.1	1.5	0.6	2.2	0.5	2.2	.....	2.2	0.8	1.5	3.5
22	6 40	0 28	4 46b	0 50a	1.5	2.0	0.8	2.3	0.6	2.6	.....	2.6	1.0	1.8	3.5
23	2 10	8 22	0 06b	8 46b	1.3	1.7	0.7	2.7	0.5	2.4	.....	2.4	0.8	1.7	3.5
24	0 45	6 57	— 0 36b	7 13b	3.0	4.0	1.7	4.7	0.8	3.7	.....	3.7	2.0	3.1	4.0
25	7 50	1 38	6 51a	1 50b	5.3	7.2	3.0	7.8	1.1	4.9	.....	4.9	3.6	4.7	3.5
26	7 30	1 18	6 34a	1 29b	6.2	8.5	3.5	9.0	1.2	5.3	.....	5.3	4.2	5.2	3.5
27	6 00	12 12	4 54a	12 25a	4.5	6.1	2.5	6.8	1.0	4.5	.....	4.5	3.0	4.0	2.5
28	7 05	1 17	6 06a	1 29b	5.6	7.5	3.1	8.2	1.1	5.0	.....	5.0	3.8	4.8	2.0
29	4 20	10 32	3 23a	10 43a	5.8	7.8	3.3	8.4	1.1	5.0	.....	5.0	3.9	4.9	4.5
30	4 15	10 27	3 16a	10 39a	5.6	7.5	3.1	8.2	1.1	5.0	.....	5.0	3.8	4.8	5.5
31	4 17	10 29	3 24a	10 40a	6.7	9.0	3.8	9.4	1.2	5.4	.....	5.4	4.5	5.5	6.0
32	4 30	10 42	3 43a	10 51a	8.7	11.7	4.9	11.9	1.4	6.2	.....	6.2	5.8	7.0	6.5
33	4 00	10 13	3 14a	10 22a	9.0	12.1	5.0	12.2	1.4	6.3	.....	6.3	6.0	7.1	7.5
34	4 05	10 17	3 23a	10 25a	10.7	14.5	6.0	14.2	1.5	6.9	.....	6.9	7.2	8.1	8.5
35	3 55	10 08	3 06a	10 18a	8.1	10.9	4.5	11.2	1.3	6.0	.....	6.0	5.4	6.5	10.0
36	3 59	10 11	4 00a	10 04a	7.8	11.3	3.3	9.0	0.6	0.2	.....	0.7	5.6	4.5	10.5
37	4 00	10 12	4 01a	10 06a	8.1	11.8	3.4	9.3	0.6	0.2	.....	0.7	5.9	4.6	12.0
38	4 15	10 27	4 16a	10 21a	9.3	13.5	3.9	10.6	0.7	0.2	.....	0.7	6.8	5.2	16.0
39	4 30	10 42	4 31a	10 36a	7.7	11.0	3.2	8.9	0.6	0.2	.....	0.6	5.5	4.4	19.5
40	5 10	11 22	5 11a	11 16a	8.2	11.9	3.4	9.5	0.7	0.2	.....	0.7	6.0	4.7	22.5
41	3 25	9 37	3 27a	9 29a	4.4	6.3	1.9	5.3	0.5	0.1	.....	0.5	3.2	2.5	8.0
42	3 45	9 57	3 47a	9 49a	3.5	5.1	1.5	4.2	0.4	0.1	.....	0.4	2.6	2.1	9.5
43	4 00	10 12	4 02a	10 06a	5.0	7.3	2.1	5.9	0.5	0.1	.....	0.5	3.6	2.8	11.0
44	4 15	10 27	4 17a	10 18a	3.2	4.7	1.3	3.9	0.4	0.1	.....	0.4	2.4	1.9	17.0
45	5 40	11 52	5 41a	11 45a	6.8	9.8	2.9	8.0	0.6	0.2	.....	0.6	4.9	4.0	17.0
46	4 15	11 28	4 16a	11 22a	7.5	10.9	3.2	8.7	0.6	0.2	.....	0.6	5.4	4.3	11.0



TABLE 3.—TIDAL DIFFERENCES

Number.	Station	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of range.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			H.W.	L.W.	H.W.	L.W.	
AFRICA (EAST COAST)—Cont'd.											
ISLANDS IN THE INDIAN OCEAN—continued.											
Lesser Islands.											
		South.	East.				Local time.		Mean Low Water Springs.		
		°	°	h. m.			h. m.	h. m.	feet.	feet.	
1	Maroni Bay, Comoro Islands .....	11 41	43 21	2 53	Singapore .....	195	+6 58	+7 04	+1.4	+0.4	1.15
2	Zaudzi, Mayotta Island.....	12 50	45 16	3 01	Singapore .....	195	+6 13	+6 19	+3.0	+0.8	1.39
3	St. Pierre, Réunion or Bourbon I.....	21 16	55 35	3 42	Singapore .....	196	+1 36	+1 42	-4.0	-0.8	0.40
4	Port Louis, Mauritius Island.....	20 08	57 29	3 50	Singapore .....	195	+2 59	+3 04	-5.6	-1.2	0.79
5	Cargados, Carajos Shoals.....	16 36	59 45	3 59	Halifax .....	51	-6 13	-5 33	-1.4	+0.2	0.66
6	Rodriguez Island.....	19 45	63 25	4 14	Halifax .....	51	+4 41	+4 20	0.0	+0.4	0.89
7	Providence Island.....	9 13	51 01	3 24	Halifax .....	51	-2 12	-2 32	+1.8	+0.8	1.26
8	Mahe Island, Seychelle Islands.....	4 36	56 32	3 42	Halifax .....	51	-3 41	-4 01	-1.1	+0.3	0.66
9	Diego Garcia I., Chagos Islands.....	7 19	72 29	4 50	Halifax .....	51	+5 50	+5 30	+0.2	+0.4	0.94
10	Keeling Islands.....	12 07	96 55	6 28	Halifax .....	51	-2 50	-3 14	-0.4	+0.4	0.92
11	Christmas Island.....	11 30	105 30	7 02	Halifax .....	51	-1 00	-1 18	-1.0	+0.2	0.73
12	Amsterdam Island.....	37 50	77 33	5 10	Halifax .....	51	+2 44	+2 24	-2.0	0.0	0.54
13	St. Paul Island.....	38 39	77 34	5 10	Halifax .....	51	+2 34	+2 14	-2.2	0.0	0.49
14	Betsy Cove, Kerguelen Island.....	49 09	70 12	4 41	Halifax .....	51	+4 34	+4 23	-0.8	+0.2	0.75
AFRICA (EAST AND SOUTH COASTS).											
NATAL AND CAPE COLONY.											
15	Durban (Port Natal).....	29 53	31 04	2 04	Cape Town .....	263	+2 22	+2 24	+0.7	+0.3	1.12
16	East London, Buffalo River.....	33 02	27 55	1 52	Cape Town .....	263	+2 02	+2 04	+0.2	+0.2	1.06
17	Port Elizabeth, Algoa Bay.....	33 58	25 37	1 42	Cape Town .....	263	+1 46	+1 47	+0.6	+0.2	1.15
18	Aliwal Harbor, Mossel Bay.....	34 11	22 09	1 29	Cape Town .....	263	+1 43	+1 45	+0.8	+0.2	1.18
19	Cape Agulhas.....	34 50	20 01	1 20	Cape Town .....	263	+1 06	+1 08	+0.5	+0.1	1.15
20	Roman Rocks, Simons Bay.....	34 11	18 27	1 14	Cape Town .....	263	+1 01	+1 03	+0.5	+0.1	1.15
21	CAPE TOWN, Table Bay.....	33 54	18 25	1 14	Cape Town .....	263	0 00	0 00	0.0	0.0	1.00
22	Saldanha Bay.....	33 05	17 58	1 12	Cape Town .....	263	+0 46	+0 48	+0.4	+0.2	1.12
23	Port Nolloth.....	29 15	16 51	1 07	Cape Town .....	263	+0 51	+0 53	+0.6	0.0	1.18
AFRICA (WEST COAST).											
ORANGE RIVER TO KONGO RIVER.											
24	Elizabeth Bay.....	26 51	15 11	1 01	Cape Town .....	263	+1 01	+1 02	+0.8	+0.2	1.21
25	Port d'Ilheo.....	23 20	14 28	0 58	Cape Town .....	263	+1 17	+1 19	+3.9	+0.5	2.00
26	Great Fish Bay.....	16 40	11 52	0 47	Cape Town .....	263	+1 27	+1 28	+0.9	+0.1	1.26
27	Benguela.....	12 34	13 23	0 54	Cape Town .....	263	+1 57	+1 59	+0.8	+0.2	1.21
28	Loanda.....	8 43	13 21	0 53	Cape Town .....	263	+2 07	+2 09	+0.2	0.0	1.06
29	Kongo River Entrance.....	6 07	12 22	0 49	Cape Town .....	263	+2 37	+2 41	+1.2	+0.2	1.32
GUINEA.											
30	Loango Bay.....	4 38	11 46	0 47	Cape Town .....	263	+2 40	+2 42	+1.6	+0.2	1.44
31	Mayumba.....	3 21	10 40	0 43	Cape Town .....	263	+2 52	+2 54	+2.1	+0.3	1.56
32	Cape Lopez.....	0 48	8 42	0 35	Cape Town .....	263	+2 57	+2 59	+0.5	+0.1	1.15
North.											
33	River Gaboon Entrance.....	0 23	9 26	0 39	Cape Town .....	263	+3 37	+3 40	+3.0	+0.4	1.76
34	Cameroon River Entrance.....	3 52	9 38	0 39	Cape Town .....	263	+3 32	+3 34	+2.3	+0.3	1.62
35	Niger River, Nun Entrance.....	4 17	6 05	0 24	Cape Town .....	263	+3 18	+3 20	+0.7	+0.1	1.21
36	Lagos River Entrance.....	6 25	3 25	0 14	Cape Town .....	263	+3 18	+3 22	-1.2	-0.2	0.74
37	Volta River Entrance.....	5 47	0 41	0 03	Cape Town .....	263	+2 48	+2 50	-0.4	0.0	0.94
West.											
38	Cape Coast Castle.....	5 06	1 14	0 05	Cape Town .....	263	+2 49	+2 50	+1.2	+0.2	1.32
39	Cape Three Points.....	4 45	2 06	0 08	Cape Town .....	263	+2 29	+2 31	-0.1	+0.1	1.06
40	Grand Lahu.....	5 10	5 03	0 20	Cape Town .....	263	+2 39	+2 41	-0.2	0.0	0.97
LIBERIA.											
41	Cape Palmas.....	4 22	7 44	0 31	Cape Town .....	263	+2 59	+3 01	-0.2	0.0	0.94
42	Sinu.....	5 00	9 08	0 37	Cape Town .....	263	+3 20	+3 24	+0.2	0.0	1.06
43	Monrovia.....	6 19	10 49	0 43	Cape Town .....	263	+4 06	+4 25	-1.3	-0.2	0.66
SIERRA LEONE.											
44	Sherbro River, Buoy Point.....	7 42	12 42	0 51	Cape Town .....	263	+6 15	+6 19	+5.0	+0.8	2.29
45	Freetown or Sierra Leone.....	8 30	13 17	0 53	Cape Town .....	263	+6 10	+6 14	+0.1	+0.9	2.56
46	Ponga River.....	10 09	14 00	0 56	Cape Town .....	263	+6 00	+6 04	+6.0	+0.8	2.53
SENEGAMBIA.											
47	Bissao, Jebra River.....	11 39	16 01	1 04	Cape Town .....	263	+9 16	+9 20	+2.2	+0.4	1.52
48	Bathurst, Gambia River.....	13 28	16 42	1 07	Cape Town .....	263	+7 31	+7 35	+1.2	+0.2	1.29
49	Senegal River Entrance.....	16 40	16 30	1 06	Cape Town .....	263	+7 01	+7 05	+1.2	+0.2	1.32
50	St. Louis, Senegal River.....	16 11	16 00	1 04	Cape Town .....	263	+8 21	+8 25	+1.2	+0.2	1.29

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWL.	LWL.	HHWL.	LLWL.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	4 45	10 58	4 17b	11 02b	6.6	10.0	1.7	7.1	0.3	2.0	.....	2.0	5.0	3.9	9.5
2	4 00	10 13	3 34b	10 16b	7.9	11.9	2.0	8.4	0.3	2.2	.....	2.1	6.0	4.5	9.5
3	11 50	5 38	11 04a	5 44b	2.3	3.5	0.6	2.6	0.1	1.2	.....	1.1	1.8	1.5	11.0
4	0 48	7 00	0 22b	7 09b	1.1	1.6	0.3	1.2	0.1	0.8	7 29	0.8	0.8	0.7	10.0
5	1 50	8 03	1 33b	8 07b	2.8	4.0	1.2	2.7	0.2	0.7	.....	0.7	2.0	1.4	7.0
6	0 20	6 32	0 06b	6 36b	3.8	5.5	1.6	3.6	0.2	0.8	.....	0.8	2.8	2.0	8.0
7	5 50	12 03	5 37b	12 06b	5.4	7.8	2.3	5.2	0.3	0.9	.....	1.0	3.9	2.8	6.5
8	4 22	10 35	4 05b	10 39b	2.9	4.3	1.2	2.8	0.2	0.7	.....	0.7	2.2	1.5	5.0
9	1 30	7 43	1 16b	7 46b	4.0	5.8	1.7	3.8	0.2	0.8	.....	0.8	2.9	2.1	2.0
10	5 20	11 32	5 04b	11 36b	3.5	5.1	1.5	3.4	0.2	0.7	.....	0.8	2.6	1.8	1.0
11	7 10	1 00	6 54b	1 04a	3.1	4.5	1.3	3.0	0.2	0.7	.....	0.7	2.2	1.6	0.5 E.
12	10 50	4 38	10 32b	4 42a	2.3	3.3	1.0	2.2	0.2	0.6	.....	0.6	1.6	1.2	22.0 W.
13	10 40	4 28	10 20b	4 33a	2.1	3.0	0.9	2.0	0.2	0.7	.....	0.6	1.5	1.2	22.5 W.
14	0 14	6 36	0 02a	6 40a	3.2	4.6	1.3	3.1	0.2	0.7	19 52	0.7	2.3	1.6	35.0 W.
15	3 58	10 11	4 00b	10 02b	3.8	5.6	1.6	4.7	0.4	0.1	17 10	0.5	2.8	2.2	25.5
16	3 37	9 50	3 35b	9 58b	3.6	5.0	1.3	4.3	0.4	0.1	.....	0.4	2.5	2.1	23.0
17	3 21	9 33	3 19b	9 41b	3.9	5.4	1.9	4.6	0.4	0.1	14 34	0.4	2.7	2.2	28.5
18	3 18	9 31	3 16b	9 38b	4.0	5.6	2.0	4.7	0.4	0.1	.....	0.4	2.8	2.3	29.0
19	2 40	8 53	2 37b	9 02b	3.9	5.2	2.2	4.8	0.5	0.2	.....	0.5	2.6	2.4	29.5
20	2 35	8 48	2 32b	8 57b	3.9	5.2	2.2	4.7	0.5	0.1	.....	0.5	2.6	2.1	29.0
21	1 34	7 45	1 31b	7 52b	3.4	4.7	1.9	4.2	0.5	0.2	12 39	0.5	2.3	2.0	29.0
22	2 20	8 33	2 17b	8 42b	3.8	5.1	2.1	4.5	0.5	0.1	.....	0.5	2.6	2.1	28.5
23	2 25	8 38	2 23b	8 46b	4.0	5.3	2.2	4.7	0.5	0.1	.....	0.5	2.6	2.1	27.0
24	2 35	8 47	2 33b	8 55b	4.1	5.5	2.3	4.8	0.5	0.1	.....	0.5	2.8	2.2	26.5
25	2 50	9 03	2 48b	9 10b	6.8	9.0	3.7	7.8	0.6	0.2	.....	0.7	4.5	3.8	25.0
26	3 00	9 12	2 58b	9 20b	4.3	5.7	2.4	5.0	0.5	0.1	.....	0.5	2.8	2.3	23.5
27	3 30	9 43	3 28b	9 51b	4.1	5.5	2.3	4.8	0.5	0.1	.....	0.5	2.8	2.2	19.0
28	3 40	9 53	3 37b	10 02b	3.6	4.8	2.0	4.3	0.5	0.1	.....	0.5	2.4	2.0	17.0
29	4 10	10 25	4 06b	10 32b	4.5	6.0	2.5	5.4	0.5	0.2	.....	0.5	3.0	2.3	16.0
30	4 13	10 26	4 11b	10 34b	4.9	6.5	2.7	5.8	0.5	0.2	.....	0.6	3.2	2.8	16.0
31	4 25	10 38	4 23b	10 45b	5.3	7.0	2.9	6.3	0.6	0.2	.....	0.6	3.5	3.0	15.5
32	4 30	10 43	4 27b	10 52b	3.9	5.2	2.2	4.6	0.5	0.1	.....	0.5	2.6	2.0	15.0
33	5 10	11 24	5 08b	11 31b	6.0	8.0	3.3	7.0	0.6	0.2	.....	0.6	4.0	3.4	15.0
34	5 05	11 18	5 03b	11 25b	5.5	7.3	3.0	6.5	0.6	0.2	.....	0.6	3.6	3.2	14.0
35	4 50	11 08	4 48b	11 11b	4.1	5.4	2.3	4.8	0.5	0.1	.....	0.5	2.7	2.2	14.5
36	4 50	11 05	4 47b	11 16b	2.5	3.3	1.3	3.1	0.4	0.1	.....	0.4	1.6	1.4	15.0
37	4 20	10 33	4 17b	10 44b	3.2	4.2	1.8	3.8	0.4	0.1	.....	0.5	2.1	1.8	15.5
38	4 20	10 32	4 18b	10 39b	4.5	6.0	2.5	5.4	0.5	0.2	.....	0.5	3.0	2.3	16.5
39	4 00	10 13	3 57b	10 22b	3.5	4.7	1.9	4.2	0.5	0.1	.....	0.5	2.4	2.0	17.0
40	4 10	10 23	4 07b	10 33b	3.3	4.4	1.8	3.9	0.4	0.1	.....	0.5	2.2	1.9	17.5
41	4 30	10 43	4 27b	10 54b	3.2	4.3	1.8	3.8	0.4	0.1	.....	0.5	2.2	1.8	18.5
42	4 50	11 05	4 47b	11 14b	3.6	4.8	2.0	4.3	0.5	0.1	.....	0.5	2.4	2.0	18.5
43	5 36	12 06	5 18b	11 50a	2.3	3.0	1.5	2.6	0.8	0.5	.....	0.6	1.5	1.3	18.5
44	7 45	1 35	7 41b	1 39a	7.8	10.4	4.8	7.9	0.6	0.4	.....	0.6	5.2	3.9	19.0
45	7 40	1 30	7 36b	1 34a	8.7	11.6	5.3	8.8	0.6	0.4	.....	0.7	5.8	4.3	19.0
46	7 30	1 20	7 27b	1 24a	8.6	11.4	5.2	8.7	0.6	0.4	.....	0.6	5.7	4.3	18.5
47	10 45	4 35	10 41b	4 40a	5.4	7.2	3.3	5.5	0.5	0.3	.....	0.5	3.6	2.7	19.0
48	9 00	2 50	8 55b	2 56a	4.4	5.9	2.7	4.5	0.5	0.3	.....	0.5	3.0	2.2	18.5
49	8 30	2 20	8 25b	2 26a	4.5	6.0	2.7	4.6	0.5	0.3	.....	0.5	3.0	2.2	16.0
50	9 50	3 40	9 45b	3 46a	4.4	5.9	2.7	4.5	0.5	0.3	.....	0.5	3.0	2.2	16.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
AFRICA (WEST COAST)—Cont'd.												
SAHARA.		North.	West.				Local time.		Mean Low Water Springs.			
		°	°	h. m.			h. m.	h. m.	feet.	feet.		
1	Cape Blanco.....	20 49	17 06	1 06	Cape Town.....	263	+10 06	+10 08	+0.8	+0.2	1.21	
2	Cape Bojador.....	26 10	14 29	0 58	Cape Town.....	263	+10 20	+10 22	+2.3	+0.3	1.62	
3	Cape Juby.....	27 57	12 54	0 52	Cape Town.....	263	+10 25	+10 27	+3.4	+0.4	1.88	
ISLANDS.		South.										
4	Tristan da Cunha Island.....	37 10	12 15	0 49	Cape Town.....	263	+10 20	+10 24	+0.5	+0.1	1.15	
5	St. Helena Island.....	15 54	5 44	0 23	Cape Town.....	263	+1 29	+1 28	-0.6	+0.8	0.62	
6	Ascension Island.....	7 55	14 25	0 58	Cape Town.....	263	+3 50	+3 49	-2.3	-0.3	0.44	
Cape Verde Islands.		North.										
7	Porto Praya, St. Jago Island.....	14 58	23 31	1 34	Cape Town.....	263	+4 22	+4 21	+0.2	0.0	1.06	
8	Do Sino Point, Sal Island.....	16 34	22 56	1 32	Cape Town.....	263	+6 02	+6 06	-0.2	0.0	0.97	
9	Porto Grande, St. Vincent Island.....	16 53	25 00	1 40	Cape Town.....	263	+4 22	+4 21	-1.2	-0.2	0.74	
Canary Islands.												
10	Santa Cruz, Palma Island.....	28 40	17 46	1 11	Cape Town.....	263	-1 09	-1 10	+3.5	+0.5	1.91	
11	Santa Cruz, Tenerife Island.....	28 28	16 15	1 05	Cape Town.....	263	-0 14	-0 13	+2.8	+0.4	1.74	
12	Puerto de la Luz, Gran Canaria I.....	28 09	15 25	1 02	Cape Town.....	263	-0 49	-0 50	+4.0	+0.6	2.06	
13	Port Naos, Lanzarote Island.....	28 57	13 33	0 54	Cape Town.....	263	-0 40	-0 41	+3.4	+0.4	1.88	
Madeira Islands.												
14	Funchal Bay, Madeira Island.....	32 38	16 55	1 08	Cape Town.....	263	-0 54	-0 53	+1.8	+0.2	1.47	
15	Porto Santo Bay.....	33 05	16 22	1 05	Cape Town.....	263	-0 49	-0 48	+1.8	+0.2	1.47	
Azores Islands.												
16	Horta Bay, Fayal Island.....	38 32	28 38	1 55	Cape Town.....	263	-2 23	-2 27	-0.6	0.0	0.85	
17	Angra Bay, Terceira Island.....	38 38	27 14	1 49	Cape Town.....	263	-1 08	-1 07	-0.2	0.0	0.97	
18	Arnel Point, San Miguel Island.....	37 49	25 08	1 41	Cape Town.....	263	-1 13	-1 12	+0.9	+0.1	1.26	
AFRICA (NORTH COAST).												
MOROCCO.												
19	Santa Cruz or Agadir.....	30 29	9 35	0 38	Lisbon.....	267	-1 34	-1 04	-2.8	-0.4	0.74	
20	Mogador.....	31 31	9 43	0 39	Lisbon.....	267	-0 59	-0 29	-1.0	-0.2	0.92	
21	Rabat.....	34 04	6 46	0 27	Lisbon.....	267	-0 29	-0 01	-1.4	-0.2	0.88	
22	Tangier, Gibraltar Strait.....	35 47	5 48	0 23	Lisbon.....	267	-0 34	-0 06	-3.4	-0.6	0.67	
23	Ceuta, Gibraltar Strait.....	35 54	5 17	0 21	Cape Town.....	263	+0 24	+0 25	-1.2	-0.2	0.74	
Mediterranean Sea.												
24	Tetuan.....	35 37	5 11	0 21	Colombo.....	247	+0 24	+0 36	+0.4	0.0	1.33	
25	Gomera.....	35 10	4 18	0 17	Colombo.....	247	+0 31	+0 43	+0.1	-0.1	1.19	
26	Melilla.....	35 18	2 57	0 12	Colombo.....	247	+0 34	+0 46	+0.2	0.0	1.26	
ALGERIA.												
27	Cape Ivi.....	36 07	0 13	0 01	Colombo.....	247	+0 51	+1 03	+0.4	0.0	1.33	
28	Algiers.....	36 47	3 04	0 12	Colombo.....	247	+1 09	+1 21	+0.6	0.0	1.48	
29	Port Collo.....	37 00	6 35	0 26	Colombo.....	247	+1 32	+1 44	+0.8	0.0	1.63	
TUNIS.												
30	Goletta, Tunis Entrance.....	36 48	10 18	0 41	Colombo.....	247	+1 55	+2 17	+0.8	+0.2	1.56	
31	Sfax Road.....	34 44	10 46	0 48	Colombo.....	247	+1 57	+2 19	+1.8	+0.3	2.15	
32	Nathor, Surkenis Bay.....	34 15	10 04	0 40	Colombo.....	247	+2 12	+2 24	+2.8	+0.6	2.74	
33	Humt Suk, Jerba Island.....	33 53	10 51	0 43	Colombo.....	247	+2 32	+2 45	+2.6	+0.6	2.59	
34	Zarzis.....	33 30	11 07	0 44	Colombo.....	247	+1 22	+1 34	+0.2	0.0	1.11	
TRIPOLI.												
35	Tripoli.....	32 54	13 11	0 58	Colombo.....	247	+8 22	+8 37	0.0	0.0	0.95	
36	Benghazi.....	32 07	20 03	1 20	Colombo.....	247	+8 16	+8 31	-0.7	-0.1	0.59	
EGYPT.												
37	Alexandria.....	31 12	29 52	1 59	Colombo.....	247	+8 05	+8 00	-0.7	-0.1	0.59	
38	Port Said.....	31 16	32 19	2 09	Colombo.....	247	+7 59	+8 14	-0.8	-0.2	0.52	
ASIA (MEDITERRANEAN SEA).												
SYRIA.												
39	Yafa (Joppa or Jaffa).....	32 08	34 44	2 19	Colombo.....	247	+7 59	+8 14	-0.6	-0.2	0.67	
40	Beirut.....	33 54	35 28	2 22	Colombo.....	247	+8 04	+8 19	-0.7	-0.1	0.59	
ASIA MINOR AND ISLANDS.												
41	Famagusta, Cyprus Island.....	35 07	33 57	2 16	Colombo.....	247	+7 59	+8 11	-0.5	-0.1	0.74	
42	Smyrna Harbor.....	38 25	27 08	1 49	Colombo.....	247	+7 35	+8 00	+0.4	0.0	1.26	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap. (Np).	Great tropic (Ge).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	11 35	5 23	11 30b	5 28a	4.1	5.5	2.5	4.2	0.5	0.3	-----	0.4	2.8	2.0	16.0
2	11 50	5 38	11 46b	5 43a	5.5	7.8	3.4	5.6	0.5	0.3	-----	0.5	3.6	2.7	17.0
3	11 56	5 43	11 51b	5 48a	6.4	8.5	3.9	6.5	0.6	0.3	-----	0.6	4.2	3.2	17.0
4	11 50	5 40	11 45a	5 45b	3.9	5.2	2.4	4.0	0.4	0.3	-----	0.4	2.6	1.9	24.0
5	3 00	9 10	2 54b	9 17b	2.1	2.8	1.3	2.2	0.3	0.2	-----	0.3	1.4	1.0	24.5
6	5 20	11 30	5 11b	11 41b	1.5	2.0	0.9	1.6	0.2	0.2	-----	0.3	1.0	0.7	23.0
7	5 50	12 00	5 45b	12 06b	3.6	4.8	2.2	3.7	0.4	0.2	-----	0.4	2.4	1.8	19.5
8	7 30	1 20	7 24b	1 28a	3.3	4.4	2.0	3.4	0.4	0.2	-----	0.4	2.2	1.6	19.5
9	5 50	12 00	5 44b	12 06b	2.5	3.3	1.5	2.6	0.3	0.2	-----	0.3	1.6	1.2	19.5
10	0 20	6 30	0 16a	6 35a	6.5	8.6	4.0	6.6	0.6	0.3	-----	0.6	4.3	3.2	18.0
11	1 15	7 27	1 11a	7 31a	5.9	7.8	3.6	6.0	0.5	0.3	-----	0.5	3.9	2.9	18.0
12	0 40	6 50	0 36a	6 55a	7.0	9.3	4.3	7.1	0.6	0.4	-----	0.6	4.6	3.5	17.5
13	0 50	7 00	0 46a	7 06a	6.4	8.5	3.9	6.5	0.5	0.3	-----	0.6	4.2	3.2	17.0
14	0 35	6 47	0 30a	6 52a	5.0	6.6	3.0	5.1	0.5	0.3	-----	0.5	3.3	2.5	18.5
15	0 40	6 52	0 35a	6 57a	5.0	6.6	3.0	5.1	0.5	0.3	-----	0.5	3.3	2.5	18.0
16	11 30	5 18	11 24b	5 25a	2.9	3.9	1.8	3.0	0.4	0.2	-----	0.4	2.0	1.4	24.0
17	0 20	6 32	0 14a	6 38a	3.3	4.4	2.0	3.4	0.4	0.2	-----	0.4	2.2	1.6	24.0
18	0 15	6 27	0 09a	6 38a	4.3	5.7	2.6	4.4	0.4	0.3	-----	0.5	2.8	2.1	23.0
19	0 30	6 42	0 26a	6 47a	6.6	8.8	4.0	6.7	0.5	0.3	-----	0.6	4.4	3.3	16.0
20	1 05	7 17	1 02a	7 21a	8.2	10.9	5.0	8.3	0.5	0.4	-----	0.6	5.4	4.1	16.0
21	1 35	7 45	1 31a	7 49a	7.8	10.4	4.8	7.9	0.6	0.4	-----	0.6	5.2	3.9	15.5
22	1 30	7 40	1 25a	7 45a	6.0	8.0	3.7	6.1	0.4	0.3	-----	0.6	4.0	3.0	15.0
23	1 55	8 07	1 49a	8 13a	2.5	3.3	1.5	2.6	0.3	0.2	-----	0.3	1.6	1.2	15.0
24	2 00	8 12	2 11a	7 50a	1.8	2.3	1.2	2.2	0.6	0.3	-----	0.7	1.2	1.0	15.0
25	2 07	8 19	2 18a	7 59a	1.6	2.1	1.1	1.9	0.5	0.3	-----	0.6	1.0	0.9	14.5
26	2 10	8 22	2 20a	8 03a	1.7	2.2	1.1	2.0	0.5	0.3	-----	0.6	1.1	0.9	14.0
27	2 27	8 39	2 38a	8 17a	1.8	2.3	1.2	2.2	0.6	0.3	-----	0.7	1.2	1.0	13.5
28	2 46	8 58	2 56a	8 37a	2.0	2.6	1.3	2.4	0.6	0.4	-----	0.7	1.3	1.1	13.0
29	3 09	9 21	3 18a	9 04a	2.2	2.8	1.5	2.6	0.6	0.4	-----	0.7	1.4	1.2	11.5
30	3 33	9 55	3 36a	9 45a	2.1	3.0	0.8	2.2	0.3	0.1	-----	0.3	1.5	1.1	10.5
31	3 35	9 57	3 37a	9 50a	2.9	4.2	1.1	3.0	0.3	0.1	-----	0.3	2.1	1.5	10.5
32	3 50	10 02	3 52a	9 54a	3.7	5.4	1.4	3.9	0.4	0.1	-----	0.4	2.7	1.9	10.5
33	4 10	10 23	4 12a	10 16a	3.5	5.1	1.4	3.6	0.3	0.1	-----	0.3	2.6	1.8	10.0
34	3 00	9 12	3 08a	9 03b	1.5	2.2	0.6	1.6	0.2	0.1	-----	0.2	1.1	0.8	10.0
35	10 00	3 50	10 03a	3 39a	1.3	1.9	0.5	1.4	0.2	0.1	-----	0.2	1.0	0.7	9.5
36	9 55	3 45	10 00a	3 27a	0.8	1.2	0.3	0.9	0.2	0.1	-----	0.2	0.6	0.4	7.0
37	9 45	3 15	9 50a	2 57b	0.8	1.1	0.3	0.9	0.2	0.0	-----	0.2	0.6	0.4	4.0
38	9 40	3 30	9 46a	3 09b	0.7	1.0	0.3	0.8	0.2	0.0	-----	0.2	0.5	0.4	3.5
39	9 40	3 30	9 45a	3 14a	0.9	1.3	0.4	1.0	0.2	0.0	-----	0.2	0.6	0.5	3.0
40	9 45	3 35	9 50a	3 17a	0.8	1.2	0.3	0.9	0.2	0.0	-----	0.2	0.6	0.4	2.0
41	9 40	3 30	9 44a	3 15a	1.0	1.4	0.4	1.1	0.2	0.0	-----	0.2	0.7	0.5	2.5
42	9 15	3 15	9 18a	3 06a	1.7	2.5	0.7	1.8	0.2	0.1	-----	0.2	1.2	0.9	4.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.				Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.			
			Arc.	Time.			HW.	LW.	HW.	LW.		
EUROPE (MEDITERRANEAN SEA).												
GREECE.												
		North.	East.				Athens time, 25° 15' East.		Mean Low Water Springs.			
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.		
1	Volo, Gulf of Volo.....	39 22	22 58	1 32	Colombo.....	247	+7 39	+7 51	+0.3	+0.1	1.19	
2	Patras, Gulf of Corinth.....	38 15	21 44	1 27	Colombo.....	247	+2 09	+2 22	-0.8	-0.2	0.52	
AUSTRIA.												
Adriatic Sea.												
							Time meridian, 15° East.					
							h. m.	h. m.	feet.	feet.		
3	Ragusa.....	42 42	18 15	1 13	Colombo.....	247	+2 20	+2 35	-0.8	-0.2	0.56	
4	Port Comisa, Lissa Island.....	43 03	16 05	1 04	Colombo.....	247	+2 17	+2 47	+0.4	0.0	1.25	
5	Port Sebenico.....	43 43	15 51	1 03	Colombo.....	247	+4 29	+5 04	-0.8	-0.2	0.52	
6	Port Lussin Piccolo.....	44 33	14 26	0 58	Colombo.....	247	+6 34	+7 14	-0.7	-0.1	0.59	
7	Port Fiume.....	45 19	14 27	0 58	Colombo.....	247	+6 39	+7 24	-0.7	-0.1	0.59	
8	Port Pola.....	44 53	13 48	0 55	Colombo.....	247	+7 27	+8 17	+1.2	+0.2	1.79	
9	Trieste.....	45 38	13 45	0 55	Colombo.....	247	+7 55	+8 42	0.0	0.0	1.04	
ITALY AND ISLANDS.												
10	Port Malamocco.....	45 20	12 19	0 49	Colombo.....	247	+8 48	+9 43	+1.0	+0.2	1.70	
11	Brindisi.....	40 39	18 00	1 12	Colombo.....	247	+1 39	+1 52	-0.2	0.0	0.99	
12	Port Augusta, Sicily.....	37 13	15 14	1 01	Colombo.....	247	+1 21	+1 34	-1.0	-0.2	0.44	
13	Valetta Harbor, Malta.....	35 54	14 31	0 58	Colombo.....	247	+1 36	+1 49	-1.0	-0.2	0.34	
14	Naples.....	40 50	14 16	0 57	Colombo.....	247	+2 25	+2 38	-1.0	-0.2	0.37	
FRANCE.												
Mediterranean Sea.												
							Paris time, 2° 20' East.					
							h. m.	h. m.	feet.	feet.		
15	Toulon.....	43 05	5 55	0 24	Colombo.....	247	+6 30	+6 57	-1.2	-0.2	0.33	
16	Marseille.....	43 18	5 21	0 21	Colombo.....	247	+5 42	+6 36	-1.2	-0.2	0.36	
SPAIN.												
Mediterranean Sea.												
			West.				Local time.					
							h. m.	h. m.	feet.	feet.		
17	Valencia.....	39 27	0 19	0 01	Colombo.....	247	+3 24	+3 54	-0.3	-0.1	0.59	
18	Malaga.....	36 43	4 24	0 18	Colombo.....	247	+0 39	+0 59	+0.8	0.0	1.6	
19	Gibraltar, Gibraltar Strait.....	36 07	5 21	0 21	Cape Town.....	263	+0 04	+0 13	-0.8	-0.2	0.52	
20	Tarifa, Gibraltar Strait.....	36 00	5 36	0 22	Cape Town.....	263	+0 01	+0 10	+0.8	+0.2	1.24	
EUROPE (WEST COAST).												
SPAIN—continued.												
							Lisbon time, 9° 11' West.					
							h. m.	h. m.	feet.	feet.		
21	Conil.....	36 17	6 15	0 25	Lisbon.....	267	-0 59	-0 28	0.0	0.0	1.00	
22	Cadiz.....	36 31	6 19	0 25	Lisbon.....	267	-1 04	-0 33	+0.7	+0.1	1.07	
23	Salmedina Rocks.....	36 42	6 26	0 26	Lisbon.....	267	-1 04	-0 33	-1.8	-0.2	0.83	
24	Bonanza, Guadalquivir River.....	36 48	6 20	0 25	Lisbon.....	267	-0 04	+0 27	-1.8	-0.2	0.8	
25	Port of Huelva, Odief River.....	37 08	6 50	0 27	Lisbon.....	267	-0 24	+0 07	-1.8	-0.2	0.83	
PORTUGAL.												
							Local time.					
							h. m.	h. m.	feet.	feet.		
26	Guadiana River Entrance.....	37 10	7 19	0 29	Lisbon.....	267	-0 27	+0 04	0.0	0.0	1.00	
27	Lagos.....	37 07	8 38	0 35	Lisbon.....	267	-0 11	+0 20	+0.8	+0.2	1.08	
28	Setubal.....	38 31	8 45	0 35	Lisbon.....	267	+0 09	+0 40	-0.4	0.0	0.97	
29	Tagus River Entrance.....	38 40	9 15	0 37	Lisbon.....	267	-0 24	+0 07	-1.4	-0.2	0.88	
30	Lisbon (Arsenal), Tagus River.....	38 42	9 08	0 37	Lisbon.....	267	0 00	0 00	0.0	0.0	-1.00	
31	Peniche.....	39 20	9 23	0 38	Lisbon.....	267	-0 23	+0 08	-0.7	-0.1	0.93	
32	Port Figueria, Mondego River.....	40 09	8 52	0 35	Lisbon.....	267	-0 21	+0 12	+0.4	0.0	1.04	
33	Oporto, Douro River.....	41 09	8 41	0 35	Lisbon.....	267	+0 09	+0 40	-1.8	-0.2	0.83	
SPAIN—continued.												
North and west coasts.												
							Local time.					
							h. m.	h. m.	feet.	feet.		
34	Vigo.....	42 15	8 41	0 35	Lisbon.....	267	+0 56	+1 27	+0.8	+0.2	1.08	
35	Salvora Island, Arosa Bay.....	42 28	9 01	0 36	Lisbon.....	267	+0 41	+1 12	-0.8	-0.2	0.92	
36	Cape Finisterre.....	42 53	9 16	0 37	Lisbon.....	267	+0 41	+1 12	-1.0	-0.2	0.91	
37	Port Camariñas.....	43 08	9 09	0 37	Rochelle.....	271	-0 57	-0 39	-2.0	0.0	0.8	
38	Coruña.....	43 23	8 24	0 34	Rochelle.....	271	-0 57	-0 39	-1.8	0.0	0.8	
39	Ferrol.....	43 29	8 16	0 33	Rochelle.....	271	-0 56	-0 38	-1.8	0.0	0.87	
40	Cedeira.....	43 39	8 05	0 32	Rochelle.....	271	-0 57	-0 39	-1.8	0.0	0.8	
41	Vivero.....	43 41	7 32	0 30	Rochelle.....	271	-0 56	-0 38	-1.8	0.0	0.8	
42	Rivadeo.....	43 33	7 00	0 28	Rochelle.....	271	-0 55	-0 37	-2.2	0.0	0.84	
43	Aviles River.....	43 38	5 56	0 24	Rochelle.....	271	-0 55	-0 37	-4.2	-0.4	0.71	
44	Gijon Bay.....	43 34	5 39	0 23	Rochelle.....	271	-0 50	-0 32	-2.7	-0.3	0.81	
45	San Vicente de la Barquera.....	43 24	4 25	0 18	Rochelle.....	271	-0 41	-0 22	-5.4	-0.8	0.65	
46	Suances, San Martin de la Arena.....	43 27	4 01	0 16	Rochelle.....	271	-0 41	-0 22	-4.4	-0.6	0.71	
47	Santander.....	43 26	3 47	0 15	Rochelle.....	271	-0 36	-0 18	-1.6	-0.2	0.89	
48	Santofia.....	43 28	3 28	0 14	Rochelle.....	271	-0 46	-0 29	-3.8	-0.4	0.74	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>
1	9 15	3 02	9 18a	2 53a	1.6	2.3	0.6	1.7	0.2	0.1		0.2	1.2	0.8	6.0
2	3 40	9 58	3 46a	9 32b	0.7	1.0	0.3	0.8	0.2	0.0		0.2	0.5	0.4	6.5
3	4 12	10 27	4 28a	9 47b	0.7	1.0	0.2	1.0	0.4	0.2		0.5	0.5	0.4	8.0
4	4 00	10 30	4 08a	10 21b	1.7	2.4	0.7	1.8	0.2	0.1		0.2	1.2	0.9	8.0
5	6 10	0 20	6 16a	0 01a	0.7	1.0	0.3	0.8	0.2	0.0		0.2	0.5	0.4	8.5
6	8 10	2 25	8 15a	2 07a	0.8	1.1	0.3	0.9	0.2	0.0		0.2	0.6	0.4	8.5
7	8 15	2 35	8 20a	2 17a	0.8	1.2	0.3	0.9	0.2	0.0		0.2	0.6	0.4	8.5
8	9 00	3 25	9 08a	3 16a	2.3	3.4	0.9	2.4	0.3	0.1		0.3	1.7	1.2	9.0
9	9 28	3 50	9 28a	3 40a	1.4	2.0	0.6	1.5	0.2	0.1		0.2	1.0	0.7	9.0
10	10 15	4 45	10 18a	4 36a	2.3	3.3	0.9	2.4	0.3	0.1		0.3	1.6	1.2	9.5
11	3 30	9 43	3 34a	9 31b	1.2	1.8	0.5	1.3	0.2	0.0		0.2	0.9	0.6	7.5
12	3 00	9 13	3 04a	9 01b	0.6	0.9	0.2	0.6	0.1	0.0		0.1	0.4	0.3	8.5
13	3 12	9 25	3 18a	9 06b	0.5	0.7	0.2	0.5	0.1	0.0	4 18	0.1	0.4	0.2	9.0
14	4 00	10 13	4 04a	9 58b	0.5	0.7	0.2	0.5	0.1	0.0		0.1	0.4	0.3	9.0
15	8 22	2 24	8 43a	1 45a	0.4	0.6	0.2	0.6	0.3	0.2	10 28	0.3	0.3	0.3	14.5
16	7 31	2 00	7 51a	1 22a	0.5	0.6	0.3	0.7	0.3	0.2	9 49	0.3	0.3	0.3	12.5
17	5 00	11 30	5 13a	11 08a	1.2	1.5	0.8	1.5	0.4	0.2		0.5	0.8	0.7	14.0
18	2 15	8 35	2 24a	8 18a	2.2	2.9	1.5	2.7	0.6	0.4		0.7	1.4	1.2	14.5
19	1 35	7 55	1 29a	8 02a	2.8	3.7	1.7	2.9	0.4	0.2		0.4	1.8	1.4	15.0
20	1 32	7 52	1 26a	7 59a	4.2	5.6	2.6	4.3	0.4	0.3		0.6	2.8	2.1	15.0
21	1 05	7 18	1 01a	7 22a	8.9	12.0	5.2	8.9	0.7	0.4		0.9	6.0	4.4	15.5
22	1 00	7 13	0 56a	7 17a	9.5	12.8	5.6	9.5	0.7	0.4		0.9	6.4	4.7	15.5
23	1 00	7 13	0 56a	7 17a	7.4	10.0	4.3	7.4	0.6	0.4		0.8	5.0	3.7	15.5
24	2 00	8 13	1 56a	8 17a	7.4	10.0	4.3	7.4	0.6	0.4		0.8	5.0	3.7	15.5
25	1 40	7 53	1 36a	7 57a	7.4	10.0	4.3	7.4	0.6	0.4		0.8	5.0	3.7	15.5
26	1 45	7 58	1 41a	8 02a	8.9	12.0	5.2	8.9	0.7	0.4		0.9	6.0	4.4	16.0
27	1 55	8 08	1 51a	8 13a	9.6	13.0	5.6	9.6	0.7	0.4		0.9	6.5	4.8	16.5
28	2 15	8 28	2 11a	8 33a	8.6	11.6	5.0	8.6	0.7	0.4		0.9	5.8	4.3	16.5
29	1 40	7 53	1 36a	7 58a	7.8	10.5	4.6	7.8	0.7	0.4		0.8	5.2	3.9	17.0
30	2 04	7 46	2 00a	7 51a	8.9	12.0	5.2	8.9	0.7	0.4	24 12	0.9	6.0	4.4	17.0
31	1 40	7 53	1 36a	7 58a	8.3	11.2	4.9	8.3	0.7	0.4		0.9	5.6	4.1	17.0
32	1 45	8 00	1 41a	8 06a	9.3	12.5	5.4	9.3	0.7	0.4		0.9	6.2	4.6	17.0
33	2 15	8 28	2 11a	8 34a	7.4	10.0	4.3	7.4	0.6	0.4		0.8	5.0	3.7	17.0
34	3 00	9 13	2 56a	9 17a	9.6	13.0	5.6	9.6	0.7	0.4		0.9	6.5	4.8	17.5
35	2 45	8 58	2 41a	9 03a	8.2	11.0	4.8	8.2	0.7	0.4		0.9	5.5	4.1	17.5
36	2 45	8 58	2 41a	9 03a	8.1	10.9	4.7	8.1	0.7	0.4		0.9	5.4	4.0	18.0
37	2 43	8 56	2 42a	8 59a	10.7	14.6	6.0	10.9	0.4	0.2		0.4	7.3	5.5	18.0
38	2 43	8 56	2 42a	8 59a	10.8	14.8	6.1	11.0	0.4	0.2		0.4	7.4	5.5	17.5
39	2 44	8 57	2 43a	9 00a	10.9	14.9	6.1	11.1	0.4	0.2		0.4	7.4	5.6	17.5
40	2 43	8 56	2 42a	8 59a	10.8	14.8	6.1	11.0	0.4	0.2		0.4	7.4	5.5	17.5
41	2 44	8 57	2 43a	9 00a	10.7	14.7	6.0	10.9	0.4	0.2		0.4	7.4	5.5	17.5
42	2 45	8 58	2 44a	9 01a	10.5	14.4	5.9	10.7	0.4	0.2		0.4	7.2	5.4	17.5
43	2 45	8 58	2 44a	9 02a	8.8	12.0	4.9	9.0	0.4	0.2		0.4	6.0	4.5	16.5
44	2 50	9 03	2 47a	9 08a	10.2	13.5	6.3	10.7	0.8	0.5		0.9	6.8	5.3	16.5
45	3 00	9 14	2 56a	9 19a	7.9	10.4	4.9	8.3	0.7	0.5		0.8	5.2	4.1	16.5
46	3 00	9 14	2 56a	9 19a	8.9	11.7	5.5	9.3	0.7	0.5		0.9	5.8	4.6	15.5
47	3 05	9 18	3 02a	9 23a	11.2	14.8	6.9	11.7	0.8	0.5		1.0	7.4	5.8	15.5
48	2 55	9 07	2 52a	9 12a	9.3	12.3	5.7	9.7	0.7	0.5		0.9	6.2	4.8	15.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
EUROPE (WEST COAST)—Cont'd.											
SPAIN—continued.											
North and west coasts—Continued.											
		North.	West.				Local time.		Mean Low Water Springs.		
		°	°	h. m.			h. m.	h. m.	feet.	feet.	
1	Castro Urdiales.....	43 24	3 16	0 13	Rochelle.....	271	-0 51	0 33	-4.2	-0.6	0.71
2	Bilbao River Entrance.....	43 23	3 04	0 12	Rochelle.....	271	-0 51	0 33	-3.4	-0.4	0.76
3	Bilbao.....	43 16	2 56	0 12	Rochelle.....	271	-0 41	-0 26	-6.8	-1.0	0.53
4	Lequeitio.....	43 23	2 34	0 10	Rochelle.....	271	-0 46	-0 31	-5.4	-0.8	0.63
5	San Sebastian.....	43 19	2 00	0 08	Rochelle.....	271	-0 46	-0 31	-4.4	-0.6	0.71
FRANCE—continued.											
Bay of Biscay.											
							Paris time.		2° 20' East.		
6	St. Jean de Luz (Fort Socoa).....	43 24	1 40	0 07	Rochelle.....	271	-0 18	-0 06	-3.8	-0.4	0.74
7	Boucaut, Adour River.....	43 34	1 31	0 06	Rochelle.....	271	+0 09	+0 26	-7.2	-1.0	0.50
8	Cape Feret.....	44 38	1 14	0 05	Rochelle.....	271	+0 23	+0 46	-3.5	-0.5	0.76
9	Arcachon Basin.....	44 40	1 09	0 05	Rochelle.....	271	+0 58	+1 22	-3.4	-0.4	0.76
10	Cordouan Light, Gironde River.....	45 35	1 10	0 05	Rochelle.....	271	+0 08	+0 31	+0.2	0.0	1.01
11	Royan, Gironde River.....	45 37	1 02	0 04	Rochelle.....	271	+0 10	+0 42	+0.1	+0.1	1.00
12	Montagne, Gironde River.....	45 28	0 48	0 03	Rochelle.....	271	+0 45	+1 33	0.0	0.0	1.00
13	Maréchal, Gironde River.....	45 19	0 46	0 03	Rochelle.....	271	+1 06	+2 04	+0.1	+0.1	1.00
14	Paulillac, Gironde River.....	45 12	0 45	0 03	Rochelle.....	271	+1 22	+2 31	+1.2	+0.2	1.02
15	Blaye, Gironde River.....	45 07	0 40	0 03	Rochelle.....	271	+1 48	+3 11	0.0	0.0	1.00
16	Bordeaux, Gironde River.....	44 50	0 34	0 02	Rochelle.....	271	+3 00	+3 12	-1.2	-0.2	0.92
17	Marennes, Seudre River Entrance.....	45 48	1 09	0 05	Rochelle.....	271	-0 02	+0 20	-3.0	-0.4	0.79
18	Ile d'Aix, Charente River.....	46 01	1 11	0 05	Rochelle.....	271	0 00	0 00	0.0	0.0	1.00
19	Rochefort, Charente River.....	45 57	0 58	0 04	Rochelle.....	271	+0 17	+0 32	+0.1	+0.1	1.00
20	ROCHELLE.....	46 09	1 09	0 05	Rochelle.....	271	0 00	0 00	0.0	0.0	1.00
21	St. Martin, Ile de Ré.....	46 12	1 22	0 05	Rochelle.....	271	-0 27	+0 01	+0.2	0.0	1.01
22	Les Sables d'Olonne.....	46 29	1 48	0 07	Rochelle.....	271	-0 05	+0 24	-3.4	-0.4	0.75
23	St. Gilles.....	46 42	1 57	0 08	Rochelle.....	271	-0 04	+0 23	-2.0	-0.2	0.87
24	Ile d'Yeu.....	46 43	2 28	0 10	Rochelle.....	271	-0 04	+0 23	-1.6	-0.2	0.88
25	Fromantine Channel.....	46 53	2 09	0 09	Rochelle.....	271	-0 23	+0 03	-3.6	-0.4	0.75
26	Port l'Herbanière, Noirmoutier I.....	47 02	2 18	0 09	Rochelle.....	271	-0 18	+0 08	+0.1	+0.1	1.00
27	Port Pornic.....	47 07	2 07	0 08	Rochelle.....	271	-0 24	+0 02	-0.2	0.0	0.99
28	St. Nazaire, Loire River.....	47 16	2 12	0 09	Rochelle.....	271	+0 12	+0 38	0.0	0.0	1.00
29	Palmbœuf, Loire River.....	47 17	2 03	0 08	Rochelle.....	271	+0 54	+1 20	+0.4	0.0	1.02
30	Pellerin, Loire River.....	47 13	1 45	0 07	Rochelle.....	271	+1 35	+2 08	-0.2	0.0	0.99
31	Nantes, Loire River.....	47 12	1 33	0 06	Rochelle.....	271	+2 24	+3 07	-0.2	0.0	0.99
32	Poulliguen.....	47 16	2 25	0 10	Rochelle.....	271	-0 07	+0 21	0.0	0.0	1.00
33	Croisic.....	47 18	2 31	0 10	Rochelle.....	271	+0 03	+0 30	+0.1	+0.1	1.00
34	Penerf, Vilaine River.....	47 31	2 30	0 10	Rochelle.....	271	+0 08	+0 36	+0.2	0.0	1.01
35	Port Navalo, Quiberon Bay.....	47 33	2 55	0 12	Rochelle.....	271	+0 25	+0 53	0.0	0.0	1.00
36	Vannes.....	47 40	2 45	0 11	Rochelle.....	271	+2 26	+2 55	-0.7	-0.1	0.95
37	Auray.....	47 41	2 58	0 12	Rochelle.....	271	+0 40	+1 08	-0.4	0.0	0.99
38	Crac'h River.....	47 34	3 00	0 12	Rochelle.....	271	+0 10	+0 38	+0.1	+0.1	1.00
39	Port Haliguen, Quiberon Bay.....	47 29	3 06	0 12	Rochelle.....	271	+0 15	+0 43	+0.2	0.0	1.02
40	Hoedic Island.....	47 20	2 52	0 11	Rochelle.....	271	-0 01	+0 30	+0.1	+0.1	1.00
41	Port le Palais, Belle Isle.....	47 21	3 09	0 13	Rochelle.....	271	+0 06	+0 36	0.0	0.0	1.00
42	Port Louis.....	47 42	3 21	0 13	Brest.....	275	-0 23	-0 18	-5.0	-0.8	0.71
43	Lorient.....	47 45	3 22	0 13	Brest.....	275	-0 19	-0 14	-5.0	-0.8	0.71
44	Concarneau.....	47 53	3 54	0 16	Brest.....	275	-0 25	-0 20	-5.9	-0.9	0.66
45	Glenan Islands.....	47 46	4 02	0 16	Brest.....	275	-0 25	-0 20	-5.8	-0.8	0.67
46	Benodet, Odet River.....	47 52	4 07	0 16	Brest.....	275	-0 10	-0 04	-3.8	-0.6	0.79
47	Loctudy.....	47 50	4 10	0 17	Brest.....	275	-0 04	0 00	-3.8	-0.6	0.79
48	Penmarch.....	47 48	4 23	0 18	Brest.....	275	-0 18	-0 11	-5.6	-0.8	0.68
49	Audierne.....	48 01	4 33	0 18	Brest.....	275	-0 19	-0 14	-7.4	-1.0	0.57
English Channel.											
50	Ile de Sein.....	48 03	4 52	0 19	Brest.....	275	+0 03	+0 09	-2.0	-0.4	0.82
51	Douarnenez.....	48 06	4 19	0 17	Brest.....	275	-0 04	+0 02	-1.0	-0.2	0.94
52	Camaret.....	48 17	4 36	0 18	Brest.....	275	+0 12	+0 17	-1.2	-0.2	0.93
53	BREST.....	48 23	4 30	0 18	Brest.....	275	0 00	0 00	0.0	0.0	1.00
54	Port Conquet.....	48 22	4 47	0 19	Brest.....	275	+0 08	+0 11	-0.2	-0.2	0.99
55	Molène.....	48 19	4 55	0 20	Brest.....	275	+0 24	+0 27	-0.3	-0.1	0.99
56	Ushant or Ouessant Island.....	48 28	5 06	0 21	Brest.....	275	+0 15	+0 18	-0.6	-0.2	0.97
57	Aberwrach.....	48 37	4 35	0 18	Brest.....	275	+0 37	+0 40	+1.0	0.0	1.06
58	Ile de Bas.....	48 45	4 02	0 16	Brest.....	275	+1 10	+1 13	+2.2	+0.2	1.13
59	Roscoff.....	48 43	3 59	0 16	Brest.....	275	+1 15	+1 18	+2.1	+0.3	1.12
60	Morlaix.....	48 40	3 53	0 16	Brest.....	275	+1 35	+1 38	+3.2	+0.4	1.15
61	Ploumanach.....	48 50	3 29	0 14	Brest.....	275	+1 43	+1 46	+3.2	+0.4	1.20
62	Plougrescant, Tréguier River.....	48 51	3 11	0 13	Brest.....	275	+1 47	+1 50	+4.6	+0.6	1.27
63	Tréguier, Tréguier River.....	48 46	3 14	0 13	Brest.....	275	+1 57	+2 00	+2.8	+0.4	1.16
64	Heaux Light.....	48 55	3 05	0 12	Brest.....	275	+2 07	+2 09	+9.4	+1.4	1.54

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	2 50	9 08	2 46a	9 08a	8.9	11.8	5.5	9.3	0.7	0.5	-----	0.9	5.9	4.6	15.5
2	2 50	9 08	2 47a	9 08a	9.6	12.7	5.9	10.0	0.7	0.5	-----	0.9	6.4	5.0	15.0
3	3 00	9 10	2 56a	9 15a	6.7	8.9	4.1	7.1	0.6	0.4	-----	0.7	4.4	3.5	15.0
4	2 55	9 06	2 52a	9 10a	8.0	10.5	4.9	8.4	0.7	0.5	-----	0.8	5.2	4.2	15.0
5	2 55	9 05	2 51a	9 10a	8.9	11.7	5.5	9.3	0.7	0.5	-----	0.9	5.8	4.6	14.5
6	3 07	9 14	3 04a	9 18a	9.3	12.3	5.8	9.8	0.7	0.5	0 47	0.9	6.2	4.8	14.5
7	3 35	9 47	3 31a	9 52a	6.3	8.3	3.9	6.6	0.6	0.4	-----	0.7	4.2	3.3	14.5
8	3 50	10 08	3 46a	10 13a	9.6	12.6	5.9	10.0	0.7	0.5	-----	0.9	6.3	5.0	15.0
9	4 25	10 44	4 21a	10 49a	9.6	12.7	5.9	10.0	0.7	0.5	-----	0.9	6.4	5.0	15.0
10	3 35	9 53	3 32a	9 57a	12.7	16.8	7.8	12.8	0.7	0.5	-----	0.9	8.4	6.8	15.0
11	3 38	10 06	3 35a	10 09a	12.6	16.7	7.7	12.7	0.7	0.5	-----	0.9	8.4	6.8	15.0
12	4 14	10 57	4 11a	11 01a	12.6	16.6	7.7	12.7	0.7	0.5	-----	0.9	8.3	6.3	14.5
13	4 35	11 28	4 32a	11 32a	12.6	16.7	7.7	12.7	0.7	0.5	-----	0.9	8.4	6.8	14.5
14	4 51	11 55	4 49a	11 59a	13.7	18.1	8.4	13.8	0.8	0.5	-----	0.9	9.0	6.8	14.5
15	5 17	0 10	5 14a	0 14a	12.6	16.6	7.7	12.7	0.7	0.5	-----	0.9	8.3	6.3	14.5
16	6 30	0 12	6 27a	0 16a	11.6	15.3	7.1	11.7	0.7	0.5	-----	0.9	7.6	5.8	14.5
17	3 25	9 42	3 22a	9 46a	10.0	13.2	6.2	10.1	0.6	0.4	-----	0.8	6.6	5.0	15.0
18	3 27	9 22	3 25a	9 28a	12.6	16.6	7.7	12.7	0.7	0.5	0 57	0.9	8.3	6.3	15.0
19	3 45	9 55	3 42a	9 59a	12.6	16.7	7.7	12.7	0.7	0.5	-----	0.9	8.4	6.8	15.0
20	3 27	9 22	3 25a	9 28a	12.6	16.6	7.7	12.7	0.7	0.5	0 57	0.9	8.3	6.3	15.0
21	3 00	9 23	2 57a	9 27a	12.7	16.8	7.8	12.8	0.7	0.5	-----	0.9	8.4	6.8	15.0
22	3 20	9 44	3 17a	9 48a	9.6	12.7	5.9	9.7	0.6	0.4	-----	0.8	6.4	4.8	15.5
23	3 20	9 42	3 17a	9 46a	10.9	14.4	6.7	11.0	0.7	0.4	-----	0.8	7.2	5.4	15.5
24	3 18	9 40	3 15a	9 44a	11.1	14.7	6.8	11.2	0.7	0.4	-----	0.8	7.4	5.5	16.0
25	3 00	9 21	2 57a	9 25a	9.5	12.6	5.8	9.6	0.6	0.4	-----	0.8	6.3	4.7	16.0
26	3 05	9 26	3 02a	9 30a	12.6	16.7	7.7	12.7	0.7	0.5	-----	0.9	8.4	6.8	16.0
27	3 00	9 21	2 57a	9 25a	12.5	16.5	7.7	12.6	0.7	0.5	-----	0.9	8.2	6.2	16.0
28	3 35	9 56	3 32a	10 00a	12.6	16.6	7.7	12.7	0.7	0.5	-----	0.9	8.3	6.3	16.0
29	4 18	10 39	4 15a	10 43a	12.9	17.0	7.9	13.0	0.7	0.5	-----	0.9	8.5	6.4	16.0
30	5 00	11 28	4 57a	11 32a	12.3	16.3	7.6	12.4	0.7	0.5	-----	0.9	8.2	6.1	15.5
31	5 50	12 28	5 47a	12 32a	12.5	16.5	7.7	12.6	0.7	0.5	-----	0.9	8.2	6.2	15.5
32	3 15	9 38	3 12a	9 42a	12.6	16.6	7.7	12.7	0.7	0.5	-----	0.9	8.3	6.8	16.0
33	3 25	9 47	3 22a	9 51a	12.6	16.7	7.7	12.7	0.7	0.5	-----	0.9	8.4	6.8	16.0
34	3 30	9 53	3 27a	9 57a	12.7	16.8	7.8	12.8	0.7	0.5	-----	0.9	8.4	6.3	16.0
35	3 45	10 08	3 42a	10 12a	12.6	16.6	7.7	12.7	0.7	0.5	-----	0.9	8.3	6.3	16.5
36	5 47	12 11	5 44a	12 15a	12.0	15.8	7.4	12.1	0.7	0.5	-----	0.9	7.9	6.0	16.0
37	4 00	10 23	3 57a	10 27a	12.3	16.2	7.6	12.4	0.7	0.5	-----	0.9	8.1	6.1	16.5
38	3 30	9 53	3 27a	9 57a	12.6	16.7	7.7	12.7	0.7	0.5	-----	0.9	8.4	6.3	16.5
39	8 35	9 58	3 32a	10 02a	12.8	16.9	7.9	12.9	0.7	0.5	-----	0.9	8.4	6.4	16.5
40	3 20	9 46	3 17a	9 50a	12.6	16.7	7.7	12.7	0.7	0.5	-----	0.9	8.4	6.8	16.0
41	3 25	9 50	3 22a	9 54a	12.6	16.6	7.7	12.7	0.7	0.5	-----	0.9	8.3	6.3	16.5
42	3 05	9 32	3 03a	9 36a	10.4	13.8	6.3	10.6	0.6	0.5	-----	0.7	6.9	5.0	16.5
43	3 09	9 36	3 07a	9 40a	10.4	13.8	6.3	10.6	0.6	0.5	-----	0.7	6.9	5.0	16.5
44	3 00	9 27	2 58a	9 31a	9.7	12.9	5.9	9.9	0.6	0.4	-----	0.7	6.4	4.7	16.5
45	3 00	9 27	2 58a	9 31a	9.8	13.0	6.0	10.0	0.6	0.5	-----	0.7	6.5	4.8	17.0
46	3 15	9 43	2 13a	9 47a	11.6	15.3	7.1	11.8	0.7	0.5	-----	0.8	7.6	5.6	17.0
47	3 20	9 46	2 18a	9 50a	11.5	15.2	7.0	11.7	0.7	0.5	-----	0.8	7.6	5.6	17.0
48	3 05	9 34	2 03a	9 38a	10.0	13.3	6.1	10.2	0.6	0.5	-----	0.7	6.6	4.8	17.0
49	3 04	9 31	3 02a	9 35a	8.4	11.1	5.1	8.6	0.6	0.4	-----	0.7	5.6	4.1	17.0
50	3 25	9 53	3 23a	9 56a	13.0	17.2	7.9	12.8	0.7	0.5	-----	0.8	8.6	6.4	17.5
51	3 20	9 48	3 18a	9 51a	13.8	18.3	8.4	13.6	0.7	0.5	-----	0.9	9.2	6.8	17.0
52	3 35	10 02	3 33a	10 05a	13.7	18.2	8.3	13.5	0.7	0.5	-----	0.9	9.1	6.8	17.5
53	3 23	9 45	3 21a	9 48a	14.7	19.5	9.0	14.5	0.8	0.4	1 06	0.9	9.8	7.2	17.5
54	3 30	9 55	3 28a	9 58a	14.6	19.3	8.9	14.4	0.8	0.6	-----	0.9	9.6	7.1	17.5
55	3 45	10 10	3 43a	10 13a	14.5	19.2	8.8	14.3	0.8	0.6	-----	0.9	9.6	7.1	17.5
56	8 35	10 00	3 33a	10 03a	14.3	18.9	8.7	14.1	0.8	0.6	-----	0.9	9.4	7.0	18.0
57	4 00	10 25	3 58a	10 28a	15.6	20.6	9.5	15.4	0.8	0.6	-----	0.9	10.3	7.6	17.5
58	4 35	11 00	4 33a	11 03a	16.6	22.0	10.1	16.4	0.8	0.6	-----	0.9	11.0	8.1	17.0
59	4 40	11 05	4 38a	11 08a	16.5	21.9	10.0	16.3	0.8	0.6	-----	0.9	11.0	8.1	17.0
60	5 00	11 25	4 58a	11 28a	17.4	23.1	10.6	17.2	0.8	0.6	-----	1.0	11.6	8.6	17.0
61	5 10	11 35	5 08a	11 38a	17.6	23.3	10.7	17.4	0.8	0.6	-----	1.0	11.6	8.6	17.0
62	5 15	11 40	5 13a	11 43a	18.7	24.8	11.4	18.5	0.9	0.6	-----	1.0	12.4	9.2	17.0
63	5 25	11 50	5 23a	11 53a	17.1	22.7	10.4	16.9	0.8	0.6	-----	0.9	11.4	8.4	17.0
64	5 35	12 00	5 33a	12 02a	22.7	30.4	13.3	22.2	0.8	0.9	-----	1.1	15.2	11.1	17.0



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
EUROPE (WEST COAST)—Cont'd.											
FRANCE—continued.											
English Channel—Continued.											
		North.	West.				Paris time, 2° 20' East.		Mean Low Water Springs.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Brehat.....	48 51	3 00	0 12	Brest.....	275	+2 04	+2 07	+9.4	+1.4	1.55
2	Lézardrieux.....	48 48	3 01	0 12	Brest.....	275	+2 06	+2 09	+11.0	+1.6	1.63
3	Palmpol.....	48 47	3 02	0 12	Brest.....	275	+2 09	+2 12	+10.4	+1.6	1.60
4	Portrieux.....	48 39	2 49	0 11	Brest.....	275	+2 10	+2 15	+10.1	+1.5	1.59
5	Binic Harbor.....	48 36	2 49	0 11	Brest.....	275	+2 12	+2 20	+9.0	+1.4	1.52
6	Légue or Port de St. Briene.....	48 32	2 43	0 11	Brest.....	275	+2 10	+2 24	+10.8	+1.6	1.62
7	Dahouet.....	48 30	2 36	0 10	Brest.....	275	+2 06	+2 22	+10.4	+1.6	1.60
8	Erquy.....	48 38	2 26	0 10	Brest.....	275	+2 08	+2 27	+11.6	+1.8	1.67
9	St. Malo.....	48 39	2 02	0 08	Brest.....	275	+2 10	+2 34	+14.2	+2.2	1.83
10	Cancale.....	48 40	1 51	0 07	Brest.....	275	+2 08	+2 34	+14.5	+2.7	1.87
11	Granville.....	48 50	1 36	0 06	Brest.....	275	+2 15	+2 37	+15.0	+2.2	1.86
12	Regneville.....	49 00	1 35	0 06	Brest.....	275	+2 22	+2 39	+13.2	+2.0	1.76
13	St. Germain.....	49 14	1 35	0 06	Brest.....	275	+2 27	+2 41	+12.2	+1.8	1.71
14	Carteret.....	49 22	1 47	0 07	Brest.....	275	+2 35	+2 44	+9.8	+1.4	1.56
15	Dielette.....	49 33	1 52	0 07	Brest.....	275	+2 47	+2 59	+6.2	+1.0	1.36
16	Chausey Islands.....	48 52	1 49	0 07	Brest.....	275	+2 21	+2 33	+13.2	+2.0	1.76
17	Les Minquiers.....	48 59	2 04	0 08	Brest.....	275	+2 13	+2 06	+13.2	+2.0	1.76
18	St. Héliar, Jersey Island.....	49 10	2 07	0 08	Brest.....	275	+2 36	+2 30	+10.1	+1.5	1.59
19	St. Peter Port, Guernsey Island.....	49 27	2 32	0 10	Brest.....	275	+2 41	+2 39	+5.6	+0.8	1.32
20	Casquets Islands.....	49 43	2 23	0 10	Brest.....	275	+2 49	+2 47	-3.6	+0.6	0.79
21	Alderney, Alderney Island.....	49 43	2 12	0 09	Brest.....	275	+2 49	+2 47	-2.2	-0.2	0.57
22	Omonville.....	49 43	1 51	0 07	Havre.....	279	-1 55	-3 07	-6.6	-0.6	0.66
23	Cherbourg.....	49 39	1 37	0 06	Havre.....	279	-1 27	-2 24	-4.4	-0.4	0.76
24	Barfleur.....	49 40	1 16	0 05	Havre.....	279	-0 44	-1 32	-5.0	-0.4	0.73
25	La Hougue.....	49 31	1 16	0 05	Havre.....	279	-0 45	-1 24	-3.8	-0.2	0.56
26	Port-en-Bessin.....	49 21	0 46	0 03	Havre.....	279	-0 40	-1 11	-2.4	0.0	0.56
27	Courseulles.....	49 20	0 27	0 02	Havre.....	279	-0 21	-0 46	-2.4	-0.2	0.55
28	Oystreham.....	49 17	0 15	0 01	Havre.....	279	-0 11	-0 15	-1.4	-0.2	0.52
29	Dives.....	49 18	0 05	0 00	Havre.....	279	-0 02	-0 07	-1.4	-0.2	0.52
East.											
30	HAVRE, Seine River.....	49 29	0 06	0 00	Havre.....	279	0 00	0 00	0.0	0.0	1.00
31	Honfleur, Seine River.....	49 25	0 13	0 01	Havre.....	279	+0 07	+0 04	+0.3	+0.1	1.01
32	Quillebeuf, Seine River.....	49 28	0 31	0 02	Havre.....	279	+0 34	+0 19	-11.6	-1.4	0.62
33	Fécamp.....	49 46	0 22	0 01	Havre.....	279	+1 04	+0 49	+0.7	+0.1	1.06
34	St. Valéry-en-Caux.....	49 52	0 42	0 03	Havre.....	279	+1 29	+1 22	+3.8	+0.6	1.20
35	Dieppe.....	49 56	1 05	0 04	Havre.....	279	+1 55	+1 38	+4.2	+0.6	1.21
36	Treport.....	50 04	1 22	0 05	Havre.....	279	+2 04	+1 35	+5.2	+0.8	1.25
37	St. Valéry-sur-Somme.....	50 11	1 38	0 07	Dover.....	299	+0 37	+0 23	+8.6	+1.6	1.46
38	Boulogne.....	50 44	1 35	0 06	Dover.....	299	+0 18	+0 04	+5.6	+1.4	1.29
39	Cape Griznez.....	50 52	1 35	0 06	Dover.....	299	+0 17	+0 03	+2.4	+1.0	1.20
40	Calais.....	50 58	1 51	0 07	Dover.....	299	+0 38	+0 24	+2.0	+0.8	1.07
41	Gravelines.....	51 01	2 06	0 08	Dover.....	299	+0 57	+0 26	+0.2	+0.6	0.97
42	Dunkerque.....	51 03	2 21	0 09	Dover.....	299	+0 55	+0 07	-1.8	+0.4	0.55
THE BRITISH ISLANDS.											
Scotland, east coast.											
			West.				Greenwich time.				
43	Duncansby Head.....	58 39	3 00	0 12	Edinburgh.....	283	-4 26	-4 29	-5.6	-0.6	0.60
44	Wick.....	58 26	3 05	0 12	Edinburgh.....	283	-3 16	-3 19	-5.4	-0.6	0.60
45	Doornoch Road.....	57 52	4 02	0 16	Edinburgh.....	283	-2 32	-2 35	-4.7	-0.5	0.66
46	Cromarty.....	57 41	4 02	0 16	Edinburgh.....	283	-2 37	-2 40	-2.2	-0.2	0.51
47	Inverness.....	57 28	4 14	0 17	Edinburgh.....	283	-1 51	-1 54	-3.6	-0.4	0.73
48	Banff.....	57 40	2 31	0 10	Edinburgh.....	283	-1 45	-1 48	-5.4	-0.6	0.61
49	Peterhead.....	57 30	1 46	0 07	Edinburgh.....	283	-1 42	-1 45	-4.0	-0.8	0.73
50	Aberdeen.....	57 09	2 07	0 08	Edinburgh.....	283	-1 15	-1 18	-3.7	-0.7	0.75
51	Stonehaven.....	56 58	2 12	0 09	Edinburgh.....	283	-1 04	-1 07	-1.8	-0.4	0.82
52	Montrose.....	56 42	2 26	0 10	Edinburgh.....	283	+0 04	+0 01	-2.0	-0.4	0.82
53	Arbroath.....	56 33	2 35	0 10	Edinburgh.....	283	-0 38	-0 41	-1.9	-0.5	0.89
54	Tay River Entrance.....	56 27	2 43	0 11	Edinburgh.....	283	-0 06	-0 09	-0.2	-0.2	1.01
55	Dundee.....	56 28	2 58	0 12	Edinburgh.....	283	+0 21	-0 18	-1.6	-0.4	0.91
56	Fife Ness.....	56 17	2 35	0 10	Edinburgh.....	283	-0 03	-0 06	-1.2	-0.4	0.95
57	Burntisland, Firth of Forth.....	56 04	3 14	0 13	Edinburgh.....	283	+0 14	+0 11	+0.2	-0.2	1.04
58	Alloa, Firth of Forth.....	56 08	3 52	0 15	Edinburgh.....	283	+1 20	+1 17	+1.4	-0.2	1.12
59	Granton, Firth of Forth.....	55 59	3 15	0 13	Edinburgh.....	283	+0 10	+0 07	0.0	-0.2	1.02
60	EDINBURGH (Leith), Firth of Forth.....	55 59	3 10	0 13	Edinburgh.....	283	0 00	0 00	0.0	0.0	1.00
61	Dunbar.....	56 00	2 31	0 10	Edinburgh.....	283	-0 05	-0 08	-1.4	-0.4	0.92
62	Eyemouth.....	55 52	2 05	0 08	Edinburgh.....	283	0 00	-0 03	-1.6	-0.4	0.91

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °	
1	5 33	11 58	5 31a	12 00a	22.8	30.5	18.3	22.3	0.8	0.9	.....	1.1	15.2	11.2	17.0	
2	5 35	12 00	5 32a	12 02a	24.0	32.2	14.0	28.5	0.8	1.0	.....	1.1	16.1	11.7	17.0	
3	5 38	12 03	5 35a	12 05a	23.6	31.7	13.8	28.1	0.8	1.0	.....	1.1	15.8	11.5	17.0	
4	5 40	12 07	5 38a	12 09a	25.3	31.3	13.6	22.8	0.8	0.9	.....	1.1	15.6	11.4	16.5	
5	5 42	12 12	5 40a	12 14a	22.4	30.0	13.1	21.9	0.8	0.9	.....	1.1	15.0	11.0	16.5	
6	5 40	12 16	5 38a	12 18a	23.8	31.9	13.9	23.3	0.8	1.0	.....	1.1	16.0	11.6	16.5	
7	5 37	12 15	5 35a	12 17a	23.6	31.7	13.8	23.1	0.8	1.0	.....	1.1	15.8	11.5	16.5	
8	5 39	12 20	5 37a	12 22a	24.6	33.0	14.4	24.1	0.8	1.0	.....	1.2	16.5	12.0	16.5	
9	5 43	0 04	5 41a	0 06b	26.8	36.0	15.7	26.3	0.9	1.0	2 39	1.2	18.0	13.2	16.0	
10	5 42	0 05	5 40a	0 07b	27.5	36.8	16.1	27.0	0.9	1.0	.....	1.2	18.4	13.5	16.0	
11	5 50	0 09	5 48a	0 11b	27.4	36.7	16.0	26.9	0.9	1.0	.....	1.2	18.4	13.4	16.0	
12	5 57	0 11	5 55a	0 13b	25.9	34.7	15.2	25.4	0.9	1.0	.....	1.2	17.4	12.7	16.0	
13	6 02	0 13	6 00a	0 15b	25.1	33.7	14.7	24.6	0.8	1.0	.....	1.2	16.8	12.8	16.0	
14	6 07	0 15	6 05a	0 17b	23.0	30.8	13.5	22.5	0.8	0.9	.....	1.1	15.4	11.3	16.0	
15	6 21	0 30	6 19a	0 32b	20.0	26.8	11.7	19.5	0.8	0.9	.....	1.0	13.4	9.8	16.0	
16	5 55	0 04	5 53a	0 06b	25.9	34.7	15.2	25.4	0.9	1.0	.....	1.2	17.4	12.7	16.0	
17	5 46	12 01	5 44a	12 03a	25.9	34.7	15.2	25.4	0.9	1.0	.....	1.2	17.4	12.7	16.0	
18	6 09	0 00	6 07a	0 02b	23.3	31.2	13.6	22.8	0.8	0.9	.....	1.1	15.6	11.4	16.5	
19	6 12	0 07	6 08a	0 10b	19.4	26.0	11.5	19.7	0.6	1.2	.....	1.3	13.0	10.0	16.5	
20	6 20	0 15	6 16a	0 27b	11.6	15.5	6.9	11.8	0.5	0.9	.....	1.0	8.8	8.0	16.5	
21	6 21	0 16	6 17a	0 28b	12.8	17.2	7.6	13.0	0.5	1.0	.....	1.0	8.6	6.6	16.5	
22	7 01	1 00	6 57a	1 12b	11.4	15.2	6.8	11.6	0.5	0.9	.....	1.0	7.6	5.9	16.5	
23	7 30	1 44	7 26a	1 55b	13.2	17.6	7.8	13.4	0.5	1.0	3 16	1.0	8.8	6.8	16.0	
24	8 14	2 37	8 10a	2 49b	12.7	17.0	7.5	12.9	0.5	1.0	.....	1.0	8.5	6.6	16.0	
25	8 13	2 45	8 09a	2 57b	13.8	18.5	8.2	14.0	0.5	1.0	.....	1.1	9.2	7.1	16.0	
26	8 20	3 00	8 16a	3 12b	14.9	20.0	8.9	15.1	0.5	1.1	.....	1.1	10.0	7.7	15.5	
27	8 40	3 26	8 37a	3 26b	15.2	19.8	9.7	16.2	0.3	0.8	.....	0.9	9.9	8.2	15.5	
28	8 53	3 54	8 50a	3 58b	16.0	20.8	10.2	17.1	0.3	0.9	.....	0.9	10.4	8.7	15.5	
29	9 01	4 07	8 58a	4 07b	16.0	20.8	10.2	17.1	0.3	0.9	.....	0.9	10.4	8.7	15.5	
30	9 03	4 14	9 00a	4 14b	17.3	22.5	11.0	18.4	0.4	0.9	4 18	0.9	11.2	9.3	15.0	
31	9 09	4 17	9 06a	4 17b	17.5	22.8	11.1	18.7	0.4	0.9	.....	0.9	11.4	9.4	15.0	
32	9 35	4 31	9 31a	4 32b	7.2	9.4	4.6	7.9	0.2	0.6	.....	0.6	4.7	4.1	15.0	
33	10 06	5 02	10 03a	5 02b	17.9	23.3	11.4	19.1	0.4	0.9	.....	0.9	11.6	9.6	15.0	
34	10 29	5 33	10 26a	5 33b	20.6	26.8	13.1	21.8	0.4	1.0	.....	1.0	13.4	11.1	15.0	
35	10 54	5 48	10 51a	5 48b	20.9	27.3	13.3	22.1	0.4	1.0	.....	1.0	13.6	12.2	15.0	
36	11 02	5 44	10 59a	5 44b	21.7	28.3	13.8	22.9	0.4	1.0	.....	1.0	14.2	11.6	14.5	
37	11 38	6 12	11 36a	6 14b	22.0	28.5	14.5	21.5	0.6	0.7	.....	0.8	14.2	10.7	14.5	
38	11 18	5 52	11 16a	5 54b	19.4	25.2	12.8	19.0	0.5	0.6	.....	0.7	12.6	9.5	14.5	
39	11 17	5 51	11 15a	5 53b	16.6	21.5	11.0	16.2	0.5	0.6	.....	0.7	10.8	8.1	14.5	
40	11 39	6 13	11 37a	6 15b	16.2	21.0	10.7	15.8	0.5	0.6	.....	0.7	10.5	7.9	14.5	
41	11 59	6 16	11 57a	6 18b	14.6	19.0	9.6	14.2	0.5	0.5	.....	0.6	9.5	7.1	14.5	
42	11 58	5 58	11 56a	6 00b	12.9	16.8	8.5	12.5	0.4	0.5	.....	0.6	8.4	6.8	14.5	
43	10 00	3 47	9 56a	3 50b	7.3	9.8	4.2	8.5	0.6	1.0	.....	0.8	4.9	4.2	20.0	
44	11 10	4 57	11 06a	5 00b	7.3	9.9	4.2	8.6	0.6	1.0	.....	0.8	5.0	4.3	20.0	
45	11 50	5 37	11 55a	5 40b	8.0	10.8	4.6	9.4	0.7	1.1	.....	0.9	5.4	4.7	20.0	
46	11 45	5 32	11 40a	5 35b	10.1	13.7	5.9	13.9	0.7	1.2	.....	1.0	6.8	6.9	20.0	
47	0 05	6 17	0 00b	6 20b	8.9	12.0	5.2	10.5	0.7	1.1	.....	1.0	6.0	5.2	19.0	
48	0 18	6 30	0 13b	6 33b	7.5	10.1	4.4	8.8	0.6	1.0	.....	0.9	5.0	4.4	18.5	
49	0 24	6 36	0 19b	6 39b	8.9	11.2	6.1	10.1	0.7	1.1	.....	1.0	5.6	5.0	18.5	
50	0 50	7 02	0 45b	7 05b	9.2	11.7	6.4	10.5	0.7	1.1	.....	1.0	5.8	5.2	18.5	
51	1 00	7 12	0 55b	7 15b	10.9	13.8	7.5	12.4	0.7	1.2	.....	1.1	6.9	6.2	19.0	
52	2 07	8 19	2 02b	8 22b	10.7	13.6	7.4	12.2	0.7	1.2	.....	1.1	6.8	6.1	19.0	
53	1 25	7 37	1 20b	7 40b	10.8	13.7	7.5	12.3	0.7	1.2	.....	1.1	6.8	6.2	19.0	
54	1 56	8 04	1 51b	8 11b	12.3	15.5	8.5	13.9	0.8	1.3	.....	1.5	7.8	7.0	19.0	
55	2 22	8 34	2 17b	8 37b	11.1	14.1	7.7	12.6	0.7	1.2	.....	1.2	7.0	6.3	19.0	
56	2 00	8 12	1 55b	8 15b	11.4	14.4	7.9	12.9	0.7	1.2	.....	1.2	7.2	6.5	19.0	
57	2 14	8 26	2 09b	8 29b	12.7	16.1	8.8	14.4	0.8	1.3	.....	1.5	8.0	7.2	19.0	
58	3 18	9 30	3 13b	9 33b	13.7	17.3	9.5	15.5	0.8	1.3	.....	1.7	8.6	7.8	19.5	
59	2 10	8 22	2 05b	9 25b	12.5	15.8	8.6	14.2	0.8	1.3	.....	1.5	7.9	7.1	19.0	
60	2 00	8 15	1 51b	8 18b	12.2	16.0	8.4	14.0	0.6	1.3	9 25	1.9	8.0	7.3	19.0	
61	1 58	8 10	1 53b	8 13b	11.2	14.2	7.7	12.7	0.7	1.2	.....	1.2	7.1	6.3	18.5	
62	2 05	8 17	2 00b	8 20b	11.1	14.0	7.7	12.6	0.7	1.2	.....	1.2	7.0	6.2	18.0	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
EUROPE (WEST COAST)—Cont'd.											
THE BRITISH ISLANDS—continued.											
England, east coast.											
		North.	West.				Greenwich time.		Mean Low Water Springs.		
		° /	° /	h. m.			h. m.	h. m.	feet.	feet.	
1	Berwick .....	55 46	1 59	0 08	Sheerness .....	291	+ 2 05	+ 2 23	- 1.8	+0.1	0.86
2	Holy Island .....	55 41	1 50	0 07	Sheerness .....	291	+ 2 16	+ 2 34	- 1.8	+0.1	0.86
3	Blyth .....	55 08	1 30	0 06	Sheerness .....	291	+ 3 00	+ 3 18	- 1.8	+0.1	0.86
4	North Shields .....	55 01	1 26	0 06	Sheerness .....	291	+ 3 06	+ 3 24	- 2.0	+0.1	0.85
5	Tyne River Entrance .....	55 01	1 25	0 06	Sheerness .....	291	+ 3 03	+ 3 21	- 1.6	+0.1	0.87
6	Newcastle, Tyne River .....	54 57	1 36	0 06	Sheerness .....	291	+ 3 17	+ 3 35	- 1.4	+0.2	0.88
7	Sunderland .....	54 56	1 21	0 05	Sheerness .....	291	+ 3 06	+ 3 24	- 2.3	0.0	0.83
8	Seaham .....	54 50	1 19	0 05	Sheerness .....	291	+ 3 08	+ 3 26	- 2.3	0.0	0.83
9	West Hartlepool .....	54 41	1 12	0 05	Sheerness .....	291	+ 3 13	+ 3 33	- 2.7	-0.1	0.81
10	Whitby .....	54 30	0 37	0 02	Sheerness .....	291	+ 3 26	+ 3 44	- 1.8	+0.1	0.86
11	Scarborough .....	54 17	0 23	0 02	Sheerness .....	291	+ 3 52	+ 4 09	- 1.4	+0.2	0.88
12	Fleay Bay .....	54 12	0 17	0 01	Sheerness .....	291	+ 4 00	+ 4 16	- 1.1	+0.2	0.91
13	Flamborough Head .....	54 07	0 05	0 00	Hull .....	287	- 1 40	- 1 56	- 4.0	-0.2	0.77
14	Bridlington .....	54 05	0 12	0 01	Hull .....	287	- 1 30	- 1 47	- 4.0	-0.2	0.77
15	Great Grimsby, Humber River .....	53 34	0 05	0 00	Hull .....	287	- 0 34	- 0 52	- 1.0	+0.2	0.93
16	HULL, Humber River .....	53 44	0 20	0 01	Hull .....	287	0 00	0 00	0.0	0.0	1.00
17	Goole, Humber River .....	53 41	0 53	0 04	Hull .....	287	+ 1 20	+ 1 12	- 6.7	-0.5	0.62
East.											
18	Spurn Point, Humber River .....	53 35	0 07	0 00	Hull .....	287	- 0 44	- 1 02	- 1.6	0.0	0.90
19	Boston Dock .....	52 57	0 00	0 00	Hull .....	287	+ 0 20	+ 0 02	+ 0.4	+0.4	1.01
20	Lynn Deep .....	53 01	0 26	0 02	Hull .....	287	- 0 12	- 0 30	+ 2.2	+0.6	1.10
21	Wells Harbor .....	52 57	0 50	0 03	Hull .....	287	+ 0 47	+ 0 29	- 7.6	-0.6	0.57
22	Blakeney Bar .....	52 58	1 00	0 04	Hull .....	287	+ 0 16	- 0 02	- 4.9	-0.3	0.72
23	Yarmouth Road .....	52 35	1 44	0 07	Sheerness .....	291	+ 8 47	+ 8 58	- 9.8	-1.1	0.35
24	Lowestoft .....	52 29	1 45	0 07	Sheerness .....	291	+ 9 29	+ 9 40	- 9.5	-1.0	0.37
25	Orford Ness .....	52 05	1 34	0 06	Sheerness .....	291	+10 48	+10 59	- 8.0	-0.9	0.47
26	Harwich .....	51 56	1 19	0 05	Sheerness .....	291	+11 40	+11 51	- 5.0	-0.6	0.67
27	Nore (light vessel), Thames River .....	51 29	0 48	0 03	Sheerness .....	291	+ 0 06	+ 0 17	- 1.4	-0.2	0.91
28	SHEERNES, Thames River .....	51 27	0 45	0 03	Sheerness .....	291	0 00	0 00	0.0	0.0	1.00
29	Chatham, Thames River .....	51 23	0 30	0 02	Sheerness .....	291	+ 0 48	+ 0 59	+ 1.0	+0.1	1.07
30	Gravesend, Thames River .....	51 26	0 22	0 01	Sheerness .....	291	+ 0 43	+ 0 54	+ 1.4	+0.1	1.09
31	Woolwich, Thames River .....	51 29	0 04	0 00	Sheerness .....	291	+ 0 51	+ 1 27	+ 1.4	+0.1	1.09
32	Greenwich, Thames River .....	51 28	0 00	0 00	London Bridge .....	295	- 0 14	- 0 44	- 2.0	-0.1	0.93
West.											
33	London Docks, Thames River .....	51 29	0 03	0 00	London Bridge .....	295	- 0 07	- 0 34	- 0.5	0.0	0.98
34	LONDON BRIDGE, Thames River .....	51 30	0 07	0 00	London Bridge .....	295	0 00	0 00	0.0	0.0	1.00
East.											
35	Margate .....	51 23	1 23	0 06	Sheerness .....	291	- 1 07	- 0 36	- 1.6	+0.1	0.87
36	Ramsgate .....	51 20	1 25	0 06	Sheerness .....	291	- 1 16	- 0 12	- 0.9	-0.3	0.96
37	Deal .....	51 14	1 25	0 06	Sheerness .....	291	- 1 37	- 0 42	- 1.1	+0.2	0.91
England, south coast.											
38	DOVER .....	51 07	1 19	0 05	Dover .....	299	0 00	0 00	0.0	0.0	1.00
39	Folkestone .....	51 05	1 12	0 05	Dover .....	299	- 0 11	- 1 11	+ 0.9	+0.7	1.01
40	Dungeness .....	50 55	0 58	0 04	Dover .....	299	- 0 32	- 1 32	+ 2.4	+1.0	1.10
41	Rye Bay .....	50 56	0 47	0 03	Dover .....	299	+ 0 04	- 0 56	+ 2.6	+1.0	1.11
42	Hastings .....	50 51	0 36	0 02	Dover .....	299	- 0 22	- 1 22	+ 4.1	+1.2	1.21
43	Beachy Head .....	50 44	0 13	0 01	Dover .....	299	+ 0 06	- 0 54	+ 0.9	+0.7	1.01
44	Newhaven .....	50 47	0 04	0 00	Dover .....	299	+ 0 38	- 0 22	+ 0.9	+0.7	1.01
West.											
45	Brighton .....	50 49	0 08	0 01	Dover .....	299	+ 0 03	- 0 57	+ 0.6	+0.8	0.99
46	Shoreham .....	50 50	0 15	0 01	Dover .....	299	+ 0 22	- 0 38	- 0.9	+0.5	0.91
47	Littlehampton .....	50 48	0 32	0 02	Dover .....	299	+ 0 09	- 0 51	- 2.6	+0.2	0.81
48	Selsea Bill .....	50 44	0 47	0 03	Dover .....	299	+ 0 35	- 0 25	- 2.3	+0.3	0.83
49	Portsmouth .....	50 47	1 06	0 04	Dover .....	299	+ 0 32	- 1 28	- 4.9	0.0	0.64
50	Calshot Castle .....	50 49	1 17	0 05	Dover .....	299	+ 0 22	- 0 38	- 4.2	0.0	0.72
51	Southampton .....	50 54	1 24	0 06	Dover .....	299	+ 2 03	+ 1 03	- 5.3	-0.1	0.66
52	Cowes, Isle of Wight .....	50 45	1 18	0 05	Dover .....	299	+ 0 07	- 0 53	- 5.8	-0.2	0.62
53	Bembridge Point, Isle of Wight .....	50 41	1 04	0 04	Dover .....	299	- 0 09	- 1 09	- 4.4	0.0	0.70
54	Yarmouth, Isle of Wight .....	50 41	1 31	0 06	Dover .....	299	- 1 07	- 2 07	-10.6	-0.8	0.34
55	Christchurch .....	50 44	1 46	0 07	Portland Br'kw .....	303	+ 3 36	+ 3 57	- 1.4	-0.2	0.74
56	Poole Entrance .....	50 40	1 56	0 08	Portland Br'kw .....	303	+ 1 37	+ 1 58	- 0.1	+0.1	0.95
57	PORTLAND BREAKWATER .....	50 34	2 25	0 10	Portland Br'kw .....	303	0 00	0 00	0.0	0.0	1.00
58	Bridport .....	50 42	2 45	0 11	Portland Br'kw .....	303	- 0 25	- 1 04	+ 3.8	+1.0	1.69
59	Lyme Regis .....	50 43	2 56	0 12	Portland Br'kw .....	303	- 0 09	- 0 48	+ 4.0	+1.0	1.73
60	Exmouth .....	50 37	3 26	0 14	Brest .....	275	+ 2 39	+ 2 30	- 7.7	-1.1	0.55
61	Teignmouth .....	50 32	3 30	0 14	Brest .....	275	+ 2 09	+ 2 00	- 6.0	-0.8	0.65
62	Torquay, Torbay .....	50 27	3 32	0 14	Brest .....	275	+ 2 14	+ 2 05	- 5.4	-0.8	0.68
63	Dartmouth .....	50 21	3 34	0 14	Brest .....	275	+ 2 24	+ 2 15	- 4.8	-0.8	0.72
64	Start Point .....	50 13	3 38	0 15	Brest .....	275	+ 1 50	+ 1 41	- 4.2	-0.6	0.76

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °	
1	2 08	8 28	2 08b	8 31b	11.6	15.0	7.5	13.3	0.8	1.5	.....	1.2	7.5	6.8	18.0	
2	2 20	8 40	2 15b	8 43b	11.6	15.0	7.5	13.3	0.8	1.5	.....	1.2	7.5	6.8	18.0	
3	3 05	9 25	3 00b	9 28b	11.6	15.0	7.5	13.3	0.8	1.5	.....	1.2	7.5	6.8	17.5	
4	3 11	9 31	3 06b	9 34b	11.4	14.8	7.4	13.1	0.8	1.5	.....	1.2	7.4	6.7	17.5	
5	3 08	9 28	3 03b	9 31b	11.7	15.2	7.6	13.4	0.8	1.5	.....	1.2	7.6	6.8	17.5	
6	3 22	9 42	3 14b	9 46b	11.9	15.5	7.7	13.7	0.8	1.6	.....	1.7	7.8	7.0	17.5	
7	3 12	9 32	3 04b	9 37b	11.2	14.5	7.3	12.9	0.8	1.5	.....	1.7	7.2	6.6	17.5	
8	3 14	9 34	3 06b	9 39b	11.2	14.5	7.3	12.9	0.8	1.5	.....	1.7	7.2	6.6	17.5	
9	3 19	9 41	3 11b	9 44b	10.9	14.1	7.1	12.7	0.8	1.6	11 16	1.7	7.1	6.6	17.0	
10	3 35	9 55	3 27b	10 00b	11.6	15.0	7.5	13.4	0.8	1.6	.....	1.7	7.5	6.9	17.0	
11	4 01	10 20	3 53b	10 24b	11.9	15.5	7.7	13.7	0.8	1.6	.....	1.7	7.8	7.0	16.5	
12	4 10	10 28	4 02b	10 33b	12.2	15.8	7.9	14.2	0.9	1.7	.....	1.8	7.9	7.3	16.5	
13	4 20	10 36	4 13b	10 40b	12.5	15.8	8.8	12.6	0.8	1.8	.....	1.8	7.9	7.3	16.5	
14	4 29	10 43	4 22b	10 47b	12.5	15.8	8.8	12.6	0.8	1.8	.....	1.8	7.9	7.3	16.5	
15	5 26	11 39	5 19b	11 43b	15.1	19.1	10.6	15.2	0.9	1.9	.....	1.9	9.6	8.4	16.5	
16	5 59	0 05	5 52b	0 08a	16.8	19.9	11.9	17.0	0.9	2.0	13 42	2.0	10.0	8.8	14.5	
17	7 16	1 14	7 08b	1 18a	10.1	12.8	7.1	10.2	0.7	1.6	.....	1.6	6.4	5.2	16.5	
18	5 16	11 29	5 11b	11 32b	14.6	18.5	10.2	14.7	0.9	1.9	.....	1.9	9.2	7.5	16.0	
19	6 20	0 08	6 14b	0 11a	16.4	20.8	11.5	16.5	0.9	2.0	.....	2.0	10.4	8.4	16.0	
20	5 50	12 03	6 44b	12 06b	18.0	22.8	12.6	18.1	0.9	2.1	.....	2.1	11.4	9.2	15.5	
21	6 50	0 38	6 42b	0 42a	9.3	11.8	6.5	9.4	0.7	1.5	.....	1.5	6.9	4.8	15.5	
22	6 20	0 08	6 13b	0 12a	11.7	14.8	8.2	11.8	0.7	1.7	.....	1.7	7.4	6.0	15.0	
23	9 05	2 53	9 15b	2 49a	4.7	5.8	3.4	5.8	0.3	1.0	.....	1.0	2.9	3.0	15.0	
24	9 47	3 35	9 57b	3 31a	5.0	6.2	3.6	6.1	0.3	1.0	.....	1.0	3.1	3.2	15.0	
25	11 05	4 53	11 14b	4 49a	6.3	7.8	4.5	7.6	0.4	1.2	.....	1.2	3.9	4.0	15.0	
26	11 56	5 44	12 03b	5 41a	9.1	11.2	6.6	10.6	0.4	1.4	.....	1.4	5.6	5.6	15.0	
27	0 20	6 33	0 26b	6 30b	12.3	15.2	8.9	13.9	0.4	1.6	.....	1.6	7.6	7.3	15.5	
28	0 14	6 16	0 07b	6 17b	13.5	16.9	9.5	15.0	0.3	1.7	7 05	1.7	8.5	7.8	15.5	
29	1 01	7 14	1 07b	7 11b	14.4	17.8	10.4	16.2	0.5	1.7	.....	1.7	8.9	8.4	15.5	
30	0 55	7 08	1 01b	7 05b	14.7	18.2	10.6	16.6	0.5	1.8	.....	1.8	9.1	8.6	15.5	
31	1 02	7 40	1 08b	7 37b	14.7	18.2	10.6	16.6	0.5	1.8	.....	1.8	9.1	8.6	15.5	
32	1 10	7 46	1 05b	7 47b	15.8	18.8	12.6	17.4	0.4	1.6	.....	1.4	9.4	9.0	15.5	
33	1 17	7 56	1 12b	7 57b	17.2	20.5	13.8	18.9	0.4	1.7	.....	1.4	10.2	9.7	16.0	
34	1 24	8 30	1 20b	8 31b	17.6	20.9	14.1	19.3	0.4	1.7	8 56	1.4	10.4	10.0	16.0	
35	11 35	5 43	11 30a	5 45b	11.7	15.2	7.6	13.3	0.4	1.0	.....	1.1	7.6	6.8	15.0	
36	11 26	6 07	11 22a	6 09b	12.9	15.8	9.3	14.8	0.6	1.1	6 52	1.2	7.9	7.5	15.0	
37	11 05	5 37	11 00a	5 39b	12.2	15.8	7.9	13.8	0.4	1.0	.....	1.1	7.9	7.0	15.0	
38	11 08	5 56	11 06a	5 58b	15.1	18.2	11.4	16.9	0.5	0.7	8 00	0.7	9.1	8.5	15.0	
39	10 57	4 45	10 55a	4 47b	15.3	19.8	10.1	16.9	0.5	0.5	.....	0.7	9.9	8.4	15.0	
40	10 35	4 23	10 33a	4 25b	16.6	21.5	11.0	18.4	0.5	0.6	.....	0.7	10.8	9.2	15.0	
41	11 10	4 58	11 08a	5 00b	16.8	21.8	11.1	18.6	0.5	0.6	.....	0.7	10.9	9.3	15.0	
42	10 43	4 31	10 41a	4 33b	18.3	23.8	12.1	20.1	0.5	0.6	.....	0.7	11.9	10.0	15.5	
43	11 10	4 58	10 08a	5 00b	15.3	19.8	10.1	16.9	0.5	0.5	.....	0.7	9.9	8.4	15.5	
44	11 41	5 29	11 39a	5 31b	15.3	19.8	10.1	16.9	0.5	0.5	.....	0.7	9.9	8.4	15.5	
45	11 05	4 53	11 03a	4 55b	15.0	19.5	9.9	16.6	0.5	0.5	.....	0.7	9.8	8.3	16.0	
46	11 24	5 12	11 22a	5 14b	13.7	17.8	9.0	15.0	0.4	0.4	.....	0.6	8.9	7.4	16.0	
47	11 10	4 58	11 08a	5 00b	12.2	16.8	8.1	13.5	0.4	0.4	.....	0.6	7.9	6.5	16.0	
48	11 35	6 23	11 33a	5 25b	12.5	16.2	8.3	13.8	0.4	0.4	.....	0.6	8.1	6.8	16.0	
49	11 31	4 19	11 29a	4 21b	10.2	13.2	6.7	11.5	0.4	0.4	.....	0.5	6.6	5.7	16.0	
50	11 20	5 08	11 17a	5 11b	10.9	14.1	7.2	12.3	0.4	0.5	.....	0.6	7.0	5.2	16.5	
51	0 35	6 48	0 33b	6 50b	9.9	12.8	6.5	11.2	0.4	0.4	.....	0.5	6.4	4.8	16.5	
52	11 05	4 53	11 02a	4 55b	9.4	12.2	6.2	10.5	0.4	0.3	.....	0.5	6.1	4.6	16.5	
53	10 50	4 38	10 47a	4 41b	10.6	13.8	7.0	12.0	0.4	0.5	.....	0.6	6.9	5.1	16.5	
54	9 50	3 38	9 46a	3 42b	5.2	6.8	3.4	6.2	0.3	0.3	.....	0.4	3.4	2.5	16.5	
55	10 00	4 48	9 48a	5 00b	3.0	4.8	0.8	3.5	0.6	0.5	.....	0.8	2.4	1.7	16.5	
56	8 00	2 48	7 50a	2 54b	3.9	6.3	1.0	4.4	0.7	0.6	.....	0.9	3.2	2.2	16.5	
57	6 21	0 48	6 13a	0 56b	4.1	6.4	1.2	5.1	0.7	0.6	3 30	0.9	3.2	2.6	17.0	
58	5 55	12 08	5 48a	12 16a	6.9	11.1	1.7	7.6	0.9	0.8	.....	1.2	5.6	3.8	17.0	
59	6 10	12 23	6 03a	12 31a	7.1	11.4	1.8	7.8	0.9	0.8	.....	1.2	5.7	3.9	17.0	
60	6 15	0 03	6 11a	0 07b	8.1	10.8	4.9	8.2	0.6	0.4	.....	0.6	5.4	4.0	17.5	
61	5 45	11 58	5 42a	12 02a	9.6	12.8	5.9	9.7	0.6	0.4	.....	0.7	6.4	4.8	17.5	
62	5 50	12 03	5 47a	12 07a	10.0	13.4	6.1	10.1	0.7	0.4	.....	0.7	6.7	5.0	17.5	
63	6 00	12 13	5 57a	12 17a	10.6	14.1	6.5	10.7	0.7	0.4	.....	0.7	7.0	5.3	17.5	
64	5 25	11 38	5 22a	11 42a	11.2	14.9	6.8	11.3	0.7	0.4	.....	0.8	7.4	5.6	17.5	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
							H.W.	L.W.	H.W.	L.W.	
			Arc.	Time.							
EUROPE (WEST COAST)—Cont'd.											
THE BRITISH ISLANDS—continued.											
England, south coast—Continued.											
		North.	West.				Greenwich time.		Mean Low Water Springs.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Bolt Head .....	50 12	3 48	0 15	Brest .....	275	+1 55	+1 46	-4.5	-0.7	0.74
2	Plymouth Breakwater .....	50 20	4 09	0 17	Brest .....	275	+1 47	+1 38	-3.8	-0.6	0.75
3	Devonport .....	50 22	4 10	0 17	Brest .....	275	+1 57	+1 48	-3.6	-0.6	0.79
4	East Looe .....	50 20	4 29	0 18	Brest .....	275	+1 38	+1 29	-2.5	-0.3	0.85
5	Fowey .....	50 20	4 38	0 19	Brest .....	275	+1 29	+1 20	-4.2	-0.6	0.76
6	Mevagissey .....	50 16	4 47	0 19	Brest .....	275	+1 19	+1 10	-3.8	-0.6	0.77
7	Truro, town quay .....	50 15	5 04	0 20	Brest .....	275	+1 18	+1 09	-8.4	-1.2	0.80
8	Falmouth .....	50 08	5 04	0 20	Brest .....	275	+1 10	+1 01	-3.4	-0.4	0.80
9	Helford Entrance .....	50 06	5 06	0 20	Brest .....	275	+1 00	+0 51	-3.8	-0.6	0.77
10	Coverack .....	50 02	5 07	0 20	Brest .....	275	+0 50	+0 41	-4.6	-0.6	0.73
11	Lizard Head .....	49 58	5 13	0 21	Brest .....	275	+1 16	+1 07	-4.8	-0.6	0.72
12	Penzance .....	50 07	5 32	0 22	Brest .....	275	+0 52	+0 43	-3.1	-0.5	0.82
13	St. Agnes Island, Scilly Islands .....	49 54	6 21	0 25	Brest .....	275	+0 50	+0 41	-3.2	-0.4	0.82
14	St. Mary Island, Scilly Islands .....	49 55	6 19	0 25	Brest .....	275	+0 47	+0 38	-3.2	-0.4	0.80
15	Trescow Island, Scilly Islands .....	49 57	6 22	0 25	Brest .....	275	+0 42	+0 33	-3.1	-0.5	0.82
England, west coast.											
16	Cape Cornwall .....	50 08	5 43	0 23	Brest .....	275	+0 48	+0 39	-1.2	-0.4	0.94
17	St. Ives .....	50 12	5 28	0 22	Brest .....	275	+1 02	+0 53	+1.2	0.0	1.05
18	Towan or New Quay .....	50 25	5 05	0 20	Brest .....	275	+0 58	+0 49	+1.8	0.0	1.12
19	Padstow Bay .....	50 34	4 55	0 20	Brest .....	275	+0 56	+0 46	+2.3	+0.1	1.15
20	Boscastle .....	50 41	4 43	0 19	Brest .....	275	+1 29	+1 20	+2.4	0.0	1.18
21	Budehaven .....	50 50	4 34	0 18	Brest .....	275	+1 58	+1 49	+3.0	+0.2	1.20
22	Lundy Island .....	51 10	4 40	0 19	Brest .....	275	+1 29	+1 20	+6.6	+0.6	1.41
23	Appledore, Torridge River .....	51 03	4 12	0 17	Brest .....	275	+2 12	+2 03	+3.0	+0.2	1.19
24	Bideford, Torridge River .....	51 00	4 13	0 17	Brest .....	275	+2 17	+2 08	-3.0	-0.6	0.84
25	Barnstaple, Taw River .....	51 04	4 03	0 16	Brest .....	275	+2 41	+2 32	-7.9	-1.3	0.55
26	Ilfracombe, Bristol Channel .....	51 12	4 07	0 16	Brest .....	275	+1 56	+1 47	+6.9	+0.7	1.42
27	Lynmouth, Bristol Channel .....	51 13	3 50	0 15	Brest .....	275	+2 15	+2 06	+9.8	+1.0	1.36
28	Minehead, Bristol Channel .....	51 13	3 28	0 14	Brest .....	275	+2 34	+2 25	+11.4	+1.2	1.65
29	Bridgewater Bar, Bristol Channel .....	51 12	3 03	0 12	Brest .....	275	+2 57	+2 48	+13.8	+1.6	1.82
30	Bridgewater, Bristol Channel .....	51 07	3 00	0 12	Brest .....	275	+4 07	+3 58	-1.2	-0.4	0.94
31	Flatholm Island, Bristol Channel .....	51 23	3 07	0 12	Brest .....	275	+3 02	+2 53	+16.2	+1.8	1.97
32	Weston-super-Mare, Bristol Chan. ....	51 20	2 59	0 12	Brest .....	275	+3 00	+2 51	+15.6	+1.8	1.94
33	Bristol, Avon River .....	51 26	2 36	0 10	Brest .....	275	+3 20	+3 11	+10.5	+1.1	1.74
34	Chepstow, Severn River .....	51 37	2 39	0 11	Brest .....	275	+3 36	+3 27	+16.3	+1.9	1.98
35	Gloucester, Severn River .....	51 51	2 17	0 09	Brest .....	275	+5 49	+5 40	-12.4	-1.8	0.29
36	Newport, Severn River .....	51 34	2 59	0 12	Brest .....	275	+3 22	+3 13	+16.2	+1.8	1.97
Wales.											
37	Cardiff, Bristol Channel .....	51 28	3 10	0 13	Brest .....	275	+3 08	+2 59	+14.9	+1.7	1.90
38	Nash Point, Bristol Channel .....	51 24	3 33	0 14	Brest .....	275	+2 34	+2 50	+11.9	+1.3	1.72
39	Swansea, Bristol Channel .....	51 37	3 56	0 16	Brest .....	275	+2 11	+2 02	+6.9	+0.7	1.42
40	Worms Head, Bristol Channel .....	51 33	4 19	0 17	Brest .....	275	+2 13	+2 04	+5.0	+0.4	1.31
41	Cardmarthen, Towy River .....	51 50	4 19	0 17	Brest .....	275	+1 57	+1 48	+5.7	+0.5	1.55
42	Caldy Island .....	51 38	4 41	0 19	Brest .....	275	+2 09	+2 00	+5.2	+0.4	1.32
43	St. Ann's Head, Milford Haven .....	51 40	5 10	0 21	Brest .....	275	+2 12	+2 03	+4.1	+0.3	1.35
44	Pembroke, Milford Haven .....	51 41	4 56	0 20	Brest .....	275	+2 11	+2 06	+2.8	+0.2	1.15
45	Smalls Light-House .....	51 43	5 40	0 23	Brest .....	275	+2 13	+2 04	+1.3	-0.1	1.10
46	Fishguard .....	51 59	4 57	0 20	Brest .....	275	+3 05	+2 56	+6.4	-1.0	0.84
47	Cardigan .....	52 05	4 39	0 19	Brest .....	275	+3 13	+3 04	-6.7	-1.1	0.75
48	New Quay .....	52 13	4 20	0 17	Brest .....	275	+3 47	+3 38	-5.8	-1.0	0.74
49	Aberystwith .....	52 24	4 06	0 16	Brest .....	275	+3 51	+3 42	-4.6	-0.8	0.74
50	Aberdovey .....	52 33	4 03	0 16	Brest .....	275	+4 01	+3 52	-4.7	-0.9	0.74
51	Barmouth .....	52 43	4 04	0 16	Brest .....	275	+4 16	+4 07	-4.6	-0.8	0.74
52	Pwllheli .....	52 54	4 26	0 18	Brest .....	275	+4 08	+3 54	-4.0	-0.8	0.75
53	Bardsey Island .....	52 45	4 48	0 19	Brest .....	275	+3 53	+3 44	-4.0	-0.8	0.75
54	Carnarvon, Menai Strait .....	53 07	4 19	0 17	Brest .....	275	+5 47	+5 38	-3.4	-0.6	0.82
55	Beaumaris, Menai Strait .....	53 16	4 05	0 16	Brest .....	275	-5 44	-5 53	+3.4	+0.2	1.12
56	Holyhead .....	53 19	4 37	0 18	Brest .....	275	-5 57	-6 06	-3.2	-0.6	0.82
57	Trwyn-Du Point .....	53 19	4 02	0 16	Liverpool .....	307	-0 42	-1 14	-4.5	-0.3	0.72
58	Air Point, Dee River .....	53 20	3 19	0 13	Liverpool .....	307	-0 15	-0 47	-2.0	0.0	0.71
England, west coast—Continued.											
59	Chester, Dee River .....	53 11	2 55	0 12	Liverpool .....	307	+1 29	+0 32	-15.4	-1.6	0.52
60	Helbre Island, Mersey River .....	53 22	3 18	0 13	Liverpool .....	307	-0 18	-0 28	-0.6	0.0	0.97
61	LIVERPOOL, Mersey River .....	53 24	3 00	0 12	Liverpool .....	307	0 00	0 00	0.0	0.0	1.00
62	Northwest Light Vessel .....	53 31	3 31	0 14	Liverpool .....	307	-0 04	-0 26	-1.9	+0.1	0.81
63	Formby Point .....	53 32	3 11	0 13	Liverpool .....	307	-0 35	-1 07	-1.4	+0.2	0.82

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LQW.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>	
1	5 30	11 43	5 28a	11 47a	10.9	14.6	6.6	11.0	0.7	0.4	.....	0.7	7.2	5.4	17.5	
2	5 20	11 33	5 18a	11 38a	11.5	15.3	7.0	11.6	0.7	0.4	.....	0.7	7.6	5.7	18.0	
3	5 30	11 43	5 28a	11 46a	11.6	15.4	7.1	11.7	0.7	0.4	.....	0.7	7.7	5.8	18.0	
4	5 10	11 23	5 08a	11 26a	12.5	16.7	7.6	12.6	0.7	0.5	.....	0.8	8.4	6.2	18.0	
5	5 00	11 13	4 58a	11 17a	11.1	14.8	6.8	11.2	0.7	0.4	.....	0.7	7.4	5.5	18.0	
6	4 50	11 03	4 48a	11 06a	11.4	15.2	7.0	11.5	0.7	0.4	.....	0.7	7.6	5.7	18.0	
7	4 48	11 01	4 44a	11 05a	7.5	10.0	4.6	7.6	0.6	0.4	.....	0.6	5.0	3.7	18.0	
8	4 40	10 53	4 37a	10 57a	11.8	15.8	7.2	11.9	0.7	0.4	.....	0.8	7.9	5.9	18.0	
9	4 30	10 43	4 27a	10 46a	11.4	15.2	7.0	11.5	0.7	0.4	.....	0.7	7.6	5.7	18.0	
10	4 20	10 33	4 17a	10 37a	10.7	14.3	6.5	10.8	0.7	0.4	.....	0.7	7.2	5.3	18.0	
11	4 45	10 58	4 42a	11 02a	10.6	14.2	6.5	10.7	0.7	0.4	.....	0.7	7.1	5.3	18.0	
12	4 20	10 33	4 17a	10 37a	12.1	16.1	7.4	12.2	0.7	0.5	.....	0.8	8.0	6.0	18.5	
13	4 15	10 28	4 12a	10 32a	11.9	15.9	7.3	12.0	0.7	0.5	.....	0.8	8.0	5.9	19.0	
14	4 12	10 25	4 09a	10 29a	11.9	16.0	7.3	12.0	0.7	0.5	.....	0.8	8.0	5.9	19.0	
15	4 07	10 20	4 04a	10 24a	12.1	16.1	7.4	12.2	0.7	0.5	.....	0.8	8.0	6.0	19.0	
16	4 15	10 28	4 10a	10 33a	13.8	17.9	9.0	13.2	0.8	0.8	.....	1.2	9.0	6.5	18.5	
17	4 30	10 43	4 25a	10 47a	16.0	20.8	10.4	15.3	0.9	0.9	.....	1.2	10.4	7.6	18.5	
18	4 28	10 41	4 23a	10 45a	16.5	21.4	10.7	15.8	0.9	0.9	.....	1.3	10.7	7.9	18.5	
19	4 25	10 38	4 20a	10 42a	16.9	21.9	11.0	16.2	0.9	0.9	.....	1.3	11.0	8.1	18.0	
20	5 00	11 13	4 58a	11 17a	17.1	22.0	11.1	16.2	0.9	0.9	.....	1.3	11.0	8.1	18.0	
21	5 30	11 43	5 28a	11 47a	17.6	22.8	11.4	16.9	0.9	0.9	.....	1.3	11.4	8.4	18.0	
22	5 00	11 13	4 58a	11 17a	20.7	26.9	13.5	20.0	1.0	1.0	.....	1.4	13.4	10.0	18.0	
23	5 45	11 58	5 41a	12 02a	17.5	22.7	11.4	16.8	0.9	0.9	.....	1.3	11.4	8.4	18.0	
24	5 50	12 03	5 45a	12 08a	12.3	16.0	8.0	11.7	0.8	0.8	.....	1.1	8.0	5.8	18.0	
25	6 15	0 08	6 09a	0 09b	8.1	10.5	5.3	7.6	0.6	0.6	.....	0.9	5.2	3.8	18.0	
26	5 30	11 43	5 28a	11 47a	20.9	27.1	13.6	20.1	1.0	1.0	.....	1.4	13.6	10.0	18.0	
27	5 50	12 03	5 46a	12 06a	23.4	30.4	15.2	22.6	1.1	1.1	.....	1.5	15.2	11.3	18.0	
28	6 10	12 23	6 06a	12 26a	24.8	32.2	16.1	24.0	1.1	1.1	.....	1.5	16.1	11.9	17.5	
29	6 35	0 23	6 31a	0 26b	26.9	35.0	17.5	26.1	1.1	1.1	.....	1.6	17.5	13.0	17.5	
30	7 45	1 33	7 40a	1 38b	13.8	17.9	9.0	13.2	0.8	0.8	.....	1.2	9.0	6.5	17.5	
31	6 40	0 28	6 36a	0 31b	29.0	37.6	18.9	28.1	1.2	1.2	.....	1.7	18.8	14.0	17.5	
32	6 38	0 26	6 34a	0 29b	28.5	37.0	18.5	27.6	1.2	1.2	.....	1.7	18.5	13.7	17.5	
33	7 00	0 48	6 56a	0 51b	24.1	31.3	15.7	23.9	1.1	1.1	.....	1.5	15.6	11.6	17.0	
34	7 15	1 03	7 11a	1 06b	29.1	37.8	18.9	28.2	1.2	1.2	.....	1.7	18.9	14.0	17.5	
35	9 30	3 18	9 22a	3 25b	4.2	5.4	2.7	3.9	0.4	0.4	.....	0.6	2.7	1.9	17.0	
36	7 00	0 48	6 56a	0 51b	29.0	37.7	18.9	28.1	1.2	1.2	.....	1.7	18.8	14.0	17.5	
37	6 45	0 33	6 41a	0 36b	27.9	36.2	18.1	27.0	1.2	1.2	.....	1.7	18.1	13.4	17.5	
38	6 10	0 23	6 06a	0 28b	25.3	32.8	16.4	24.4	1.1	1.1	.....	1.6	16.4	12.2	18.0	
39	5 45	11 58	5 41a	12 01a	20.9	27.1	13.6	20.1	1.0	1.0	.....	1.5	13.6	10.0	18.0	
40	5 46	11 59	5 42a	12 03a	19.3	25.0	12.5	18.4	1.0	1.0	.....	1.4	12.5	9.2	18.0	
41	5 30	11 43	5 28a	11 47a	19.9	25.8	12.9	19.0	1.0	1.0	.....	1.4	12.9	9.6	18.5	
42	5 40	11 53	5 36a	11 57a	19.5	25.3	12.7	18.7	1.0	1.0	.....	1.4	12.6	9.4	18.5	
43	5 41	11 54	5 36a	11 58a	18.5	24.0	12.0	17.7	1.0	1.0	.....	1.4	12.0	9.3	19.0	
44	5 41	11 58	5 37a	12 02a	17.4	22.6	11.3	16.7	0.9	0.9	.....	1.3	11.3	8.3	19.0	
45	5 40	11 53	5 35a	11 57a	16.1	20.9	10.5	15.4	0.9	0.9	.....	1.3	10.4	7.6	19.0	
46	6 35	0 23	6 29a	0 29b	9.4	12.2	6.1	8.9	0.7	0.7	.....	1.0	6.1	4.4	19.0	
47	6 44	0 32	6 38a	0 38b	9.1	11.8	5.9	8.6	0.7	0.7	.....	1.0	5.9	4.3	18.5	
48	7 20	1 08	7 14a	1 13b	9.9	12.9	6.4	9.4	0.7	0.7	.....	1.0	6.4	4.7	18.5	
49	7 25	1 13	7 19a	1 18b	10.9	14.2	7.1	10.4	0.7	0.7	.....	1.1	7.1	5.1	18.5	
50	7 35	1 23	7 29a	1 28b	10.9	14.1	7.1	10.4	0.7	0.7	.....	1.1	7.0	5.1	18.5	
51	7 50	1 38	7 44a	1 43b	10.9	14.2	7.1	10.4	0.7	0.7	.....	1.1	7.1	5.1	18.5	
52	7 35	1 23	7 29a	1 28b	11.4	14.8	7.4	10.8	0.8	0.8	.....	1.1	7.4	5.4	19.0	
53	7 24	1 12	7 18a	1 17b	11.5	14.9	7.5	10.9	0.8	0.8	.....	1.1	7.4	5.5	19.0	
54	9 20	3 08	9 15a	3 13b	12.0	15.6	7.8	11.4	0.8	0.8	.....	1.1	7.8	5.7	19.0	
55	10 15	4 03	10 11a	4 07b	17.9	23.2	11.6	17.2	0.9	0.9	.....	1.3	11.6	8.6	19.0	
56	10 00	3 48	9 55a	3 53b	12.2	15.8	7.9	11.6	0.8	0.8	.....	1.1	7.9	5.8	19.0	
57	10 10	3 58	10 06a	4 03b	17.1	21.9	11.5	18.6	1.0	1.0	.....	1.4	11.0	9.3	19.0	
58	10 40	4 28	10 36a	4 33b	19.3	24.8	12.9	20.9	1.1	1.1	.....	1.5	12.4	10.6	18.0	
59	0 00	5 48	-0 06b	5 56b	7.6	9.8	5.1	8.6	0.7	0.7	.....	0.9	4.9	4.3	18.0	
60	10 37	4 47	10 34a	4 50b	20.7	26.2	14.1	22.5	1.2	1.3	7 35	1.6	13.1	11.3	18.0	
61	10 56	5 16	10 53a	5 18b	21.3	26.7	14.8	22.9	1.1	1.1	7 50	1.5	13.4	11.5	18.0	
62	10 50	4 48	10 47a	4 51b	19.3	25.0	12.7	21.0	1.0	1.0	.....	1.4	12.5	10.5	18.5	
63	10 20	4 08	10 17a	4 11b	19.6	25.5	12.9	21.3	1.0	1.0	.....	1.4	12.8	10.7	18.0	

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of ranges.	
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.		LW.
EUROPE (WEST COAST)—Cont'd.											
THE BRITISH ISLANDS—continued.											
England, west coast—Continued.											
		North.	West.				Greenwich time.		Mean Low Water Springs.		
		° /	° /	A. M.			A. M.	A. M.	feet.	feet.	
1	Stanner Point, Ribble River	53 45	3 01	0 12	Liverpool	307	-0 16	-0 38	-1.6	+0.2	0.92
2	Preston, Ribble River	53 45	2 42	0 11	Liverpool	307	+0 08	-0 24	-9.2	-0.8	0.61
3	Fleetwood, Morecambe Bay	53 56	3 00	0 12	Liverpool	307	+0 01	0 28	+0.2	+0.4	0.99
4	Lancaster, Lune River	54 03	2 48	0 11	Liverpool	307	+0 03	-0 24	-16.6	-1.8	0.31
5	Barrow, Peel Harbor	54 07	3 14	0 13	Liverpool	307	+1 03	+0 28	+0.6	+0.4	1.00
6	Whitehaven, Solway Firth	54 33	3 36	0 14	Liverpool	307	+0 03	-0 26	-1.1	+0.3	0.93
7	Workington, Solway Firth	54 39	3 35	0 14	Liverpool	307	0 01	-0 36	-1.4	-0.2	0.93
8	Maryport, Solway Firth	54 43	3 30	0 14	Liverpool	307	+0 16	-0 16	-2.1	-0.1	0.90
9	Silloth, Solway Firth	54 52	3 24	0 14	Liverpool	307	+0 31	-0 01	-1.4	+0.2	0.93
10	Port Carlisle, Solway Firth	54 56	3 13	0 13	Liverpool	307	+1 33	+0 33	-6.5	-0.5	0.72
Isle of Man.											
11	Ayre Point	54 25	4 22	0 17	Liverpool	307	+0 04	-0 28	-6.6	-0.6	0.71
12	Ramsey	54 19	4 22	0 17	Liverpool	307	+0 09	-0 23	-6.0	-0.4	0.74
13	Douglas	54 09	4 28	0 18	Liverpool	307	+0 10	-0 22	-6.0	-0.4	0.74
14	Castletown	54 04	4 39	0 19	Liverpool	307	+0 09	-0 23	-6.6	-0.6	0.71
15	Peel	54 14	4 42	0 19	Liverpool	307	+0 07	-0 25	-9.8	-1.0	0.58
Scotland, west coast.											
16	Barnkirk or Annan Foot	54 58	3 16	0 13	Greenock	311	+0 25	+0 39	+15.6	+1.6	2.54
17	Dumfries, Nith R., Solway Firth	55 04	3 36	0 14	Greenock	311	+0 01	+0 15	-4.8	-0.5	0.54
18	Kirkcudbright	54 50	4 03	0 16	Greenock	311	-0 48	-0 33	+10.5	+1.1	2.04
19	Wigton	54 51	4 26	0 18	Greenock	311	-0 25	-0 11	+2.5	+0.3	1.25
20	Newton Stewart	54 57	4 28	0 18	Greenock	311	+0 06	+0 19	+0.5	+0.1	1.05
21	Port William	54 43	4 33	0 18	Greenock	311	-0 45	-0 31	+6.0	+0.8	1.59
22	Mull of Galloway	54 38	4 51	0 19	Greenock	311	-0 39	-0 25	+3.2	+0.4	1.21
23	Port Patrick	54 50	5 07	0 20	Greenock	311	-0 43	-0 29	+3.2	+0.4	1.31
24	Loch Ryan	55 00	5 09	0 21	Greenock	311	-0 40	-0 26	-0.5	-0.1	0.98
25	Lamlash, Firth of Clyde	55 31	5 05	0 20	Greenock	311	-0 08	+0 06	-1.8	-0.2	0.88
26	Ayr, Firth of Clyde	55 28	4 38	0 19	Greenock	311	-0 04	+0 10	-2.2	-0.2	0.79
27	Ardsrossan, Firth of Clyde	55 38	4 49	0 19	Greenock	311	-0 09	+0 05	-2.2	-0.2	0.79
28	GREENOCK, Firth of Clyde	55 57	4 45	0 19	Greenock	311	0 00	0 00	0.0	0.0	1.00
29	Dumbarton, Clyde River	55 56	4 33	0 18	Greenock	311	+0 45	+0 59	+1.1	-0.1	0.99
30	Renfrew, Clyde River	55 54	4 25	0 18	Greenock	311	+1 15	+1 29	+0.4	0.0	0.97
31	Glasgow, Clyde River	55 52	4 14	0 17	Greenock	311	+1 34	+1 48	0.0	0.0	1.00
32	Inverary, Loch Fyne	56 14	5 05	0 20	Greenock	311	+0 07	+0 21	-1.4	-0.2	0.87
33	Campbeltown	56 26	5 36	0 22	Greenock	311	-0 11	+0 03	-2.4	-0.2	0.77
34	Mull of Cantyre	56 19	5 48	0 23	Greenock	311	-1 20	-1 06	-6.6	-0.6	0.35
35	Port Ellen, Islay Island	56 37	6 13	0 25	Greenock	311	+5 37	+5 51	-5.8	-0.6	0.13
36	Crinan	56 06	5 33	0 22	Greenock	311	+5 19	+5 32	-4.9	-0.5	0.52
37	Schallarsaig, Colonsay Island	56 04	6 10	0 25	Greenock	311	+5 52	+6 05	-0.4	0.0	0.98
38	Oban, Firth of Lorne	56 25	5 28	0 22	Greenock	311	+5 54	+6 07	+1.4	+0.2	1.14
39	Tobermory, Isle of Mull	56 37	6 04	0 24	Greenock	311	+6 06	+6 19	+1.4	+0.2	1.15
40	Heynish, Tiree Island	56 29	6 54	0 28	Greenock	311	+6 06	+6 18	-0.5	+0.1	1.06
41	Loch Moidart	56 48	5 53	0 24	Greenock	311	+6 16	+6 29	+2.1	+0.3	1.21
42	Loch Nevis	57 01	5 49	0 23	Greenock	311	+6 20	+6 33	+2.8	-0.4	1.29
43	Kyle Rhea, Isle of Skye	57 14	5 40	0 23	Greenock	311	-5 50	-5 37	+3.4	+0.4	1.34
44	Kyle Akin, Loch Aish	57 17	5 44	0 23	Greenock	311	-5 35	-5 22	+3.9	+0.5	1.38
45	Portree, Isle of Skye	57 24	6 11	0 25	Greenock	311	-5 18	-5 05	+3.2	+0.4	1.32
46	Loch Torridon	57 35	5 49	0 23	Greenock	311	-5 30	-5 17	+3.2	+0.4	1.33
47	Poolwee, Loch Ewe	57 47	5 40	0 23	Greenock	311	-5 15	-5 02	+2.8	+0.4	1.28
48	Ullapool, Loch Broom	57 56	5 14	0 21	Greenock	311	-5 15	-5 02	+2.8	+0.4	1.28
49	Loch Inver	58 09	5 17	0 21	Greenock	311	-5 12	-4 59	+2.5	+0.3	1.25
50	Loch Laxford	58 24	5 08	0 21	Greenock	311	-5 07	-4 54	+3.2	+0.4	1.32
Scotland, north coast.											
51	Cape Wrath	58 38	5 00	0 20	Greenock	311	-4 23	-4 10	+3.7	+0.5	1.37
52	Loch Eriboll	58 32	4 39	0 19	Greenock	311	-4 14	-4 01	+3.2	+0.4	1.32
53	Loch Tongue	58 31	4 24	0 18	Greenock	311	-4 05	-3 52	+3.2	+0.4	1.33
54	Thurso	58 37	3 32	0 14	Greenock	311	-3 54	-3 34	+2.1	+0.3	1.21
55	Stroma Island, south side	58 40	3 07	0 12	Greenock	311	-2 16	-2 03	-2.1	-0.1	0.80
Ireland, east coast.											
Local time.											
56	Red Bay	55 03	6 03	0 24	Kingstown	315	-0 88	-0 25	-6.3	-0.8	0.37
57	Malden Rocks	54 56	5 44	0 23	Kingstown	315	-0 24	-0 11	-3.6	-0.5	0.64
58	Belfast	54 40	5 49	0 23	Kingstown	315	-0 12	-0 23	-1.2	-0.3	0.90
59	Donaghadee	54 39	5 32	0 22	Kingstown	315	+0 09	+0 18	+0.4	-0.1	1.09
60	Killard Point, Lough Strangford	54 18	5 32	0 22	Kingstown	315	-0 15	-0 02	+3.0	+0.1	1.34

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.	
	Mean.		Tropic.		Mean (Mn.).	Spring (Sg.).	Neap (Np.).	Great tropic. (Gc.).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.		
	HWI.	LWI.	HHWI.	LLWI.												
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °	
1	10 40	4 28	10 37a	4 31b	19.6	25.4	12.9	21.3	1.0	1.0	.....	1.4	12.7	10.7	18.0	
2	11 05	4 53	11 01a	4 57b	13.0	16.9	8.6	14.4	0.8	0.8	.....	1.2	8.4	7.2	18.0	
3	11 00	4 48	10 57a	4 51b	21.1	27.4	13.9	22.9	1.0	1.1	.....	1.5	18.7	11.5	18.0	
4	11 05	4 53	10 59a	4 59b	6.6	8.5	4.4	7.6	0.6	0.6	.....	0.8	4.2	3.8	18.0	
5	11 55	5 43	11 52a	5 46b	21.4	27.8	14.1	23.2	1.0	1.1	.....	1.5	13.9	11.6	18.5	
6	11 00	4 48	10 57a	4 51b	19.9	25.9	13.1	21.6	1.0	1.0	.....	1.4	18.0	10.8	18.5	
7	10 50	4 38	10 47a	4 41b	19.8	25.7	13.1	21.5	1.0	1.0	.....	1.4	12.8	10.7	18.5	
8	11 10	4 58	11 07a	5 01b	19.1	24.8	12.6	20.8	1.0	1.0	.....	1.4	12.4	10.5	19.0	
9	11 25	5 18	11 22a	5 16b	19.8	25.7	13.1	21.5	1.0	1.0	.....	1.4	12.8	10.7	19.0	
10	0 00	5 48	-0 04b	5 52b	15.3	19.8	10.1	16.9	0.9	0.9	.....	1.8	9.9	8.4	18.5	
11	10 55	4 43	10 51a	4 47b	15.2	19.7	10.0	16.8	0.9	0.9	.....	1.2	9.8	8.4	19.0	
12	11 00	4 48	10 56a	4 52b	15.8	20.5	10.4	17.4	0.9	0.9	.....	1.3	10.2	8.7	19.0	
13	11 00	4 48	10 56a	4 52b	15.8	20.5	10.4	17.4	0.9	0.9	.....	1.3	10.2	8.7	19.0	
14	10 58	4 46	10 54a	4 50b	15.2	19.7	10.0	16.8	0.9	0.9	.....	1.2	9.8	8.4	19.5	
15	10 56	4 44	10 52a	4 48b	12.4	16.1	8.2	13.8	0.8	0.8	.....	1.1	8.0	6.9	19.0	
16	12 15	6 03	12 13a	6 06b	23.1	28.5	17.2	24.5	1.2	0.8	.....	1.4	14.2	12.2	19.0	
17	11 50	5 38	11 46a	5 45b	4.9	6.0	3.6	5.5	0.6	0.3	.....	0.7	3.0	2.7	19.0	
18	11 00	4 48	10 58a	4 52b	18.6	22.9	13.8	19.9	1.1	0.7	.....	1.3	11.4	9.9	19.0	
19	11 20	5 08	11 17a	5 13b	11.4	14.0	8.4	12.4	0.9	0.5	.....	1.0	7.0	6.1	19.0	
20	11 50	5 38	11 47a	5 42b	9.6	11.8	7.1	10.5	0.8	0.5	.....	0.9	5.9	5.2	19.5	
21	11 00	4 48	11 58a	4 52b	14.5	17.9	10.8	15.6	1.0	0.6	.....	1.1	9.0	7.7	19.5	
22	11 05	4 53	11 03a	4 58b	12.0	14.8	8.9	13.0	0.9	0.5	.....	1.0	7.4	6.4	19.5	
23	11 00	4 48	10 57a	4 53b	11.9	14.7	8.8	12.9	0.9	0.5	.....	1.0	7.4	6.4	20.0	
24	11 02	4 50	10 59a	4 55b	8.9	10.9	6.6	9.8	0.8	0.5	.....	0.9	5.4	4.8	20.0	
25	11 35	5 23	11 32a	5 26b	8.0	9.8	5.9	8.8	0.7	0.4	.....	0.8	4.9	4.3	20.0	
26	11 40	5 28	11 36a	5 34b	7.1	8.7	5.2	7.9	0.7	0.4	.....	0.8	4.1	3.9	20.0	
27	11 35	5 23	11 31a	5 29b	7.2	8.8	5.3	8.0	0.7	0.4	.....	0.8	4.4	3.9	20.0	
28	11 44	5 18	11 41a	5 23b	9.1	11.2	6.8	10.0	0.8	0.5	9 31	0.9	5.6	4.9	20.0	
29	0 05	6 18	0 02b	6 24b	8.2	10.1	6.1	9.0	0.7	0.5	.....	0.9	5.0	4.5	20.0	
30	0 35	6 48	0 32b	6 54b	8.8	10.8	6.5	9.7	0.8	0.5	.....	0.9	5.4	4.8	20.0	
31	0 55	7 08	0 52b	7 14b	9.1	11.2	6.7	10.0	0.8	0.5	.....	0.9	5.6	5.0	20.0	
32	11 50	5 38	11 47a	5 43b	7.9	9.7	5.8	8.7	0.7	0.4	.....	0.8	4.8	4.3	20.0	
33	11 30	5 18	11 26a	5 25b	7.0	8.6	5.2	7.8	0.7	0.4	.....	0.8	4.3	3.8	20.5	
34	10 20	4 08	10 15a	4 16b	3.2	4.0	2.4	3.8	0.5	0.3	.....	0.5	2.0	1.8	20.0	
35	4 50	11 03	4 44b	11 12a	3.9	4.8	2.9	4.5	0.5	0.3	.....	0.6	2.4	2.2	21.0	
36	4 35	10 47	4 30b	10 55a	4.7	5.8	3.5	5.3	0.5	0.3	.....	0.7	2.9	2.6	20.5	
37	5 05	11 17	5 01b	11 22a	8.9	10.9	6.6	9.8	0.8	0.5	.....	0.9	5.4	4.8	21.5	
38	5 10	11 22	5 06b	11 26a	10.4	12.8	7.7	11.3	0.8	0.5	.....	1.0	6.4	5.6	20.5	
39	5 20	11 32	5 18b	11 36a	10.5	12.9	7.8	11.4	0.8	0.5	.....	1.0	6.4	5.6	21.0	
40	5 15	11 27	5 12b	11 32a	9.6	11.8	7.1	10.5	0.8	0.5	.....	0.9	5.9	5.2	21.5	
41	5 30	11 42	5 27b	11 47a	11.0	13.5	8.1	11.9	0.8	0.5	.....	1.1	6.8	5.9	21.0	
42	5 35	11 47	5 33b	11 51a	11.7	14.4	8.7	12.7	0.9	0.5	.....	1.1	7.2	6.2	21.0	
43	5 50	12 02	5 43b	12 06a	12.2	15.0	9.0	13.2	0.9	0.6	.....	1.1	7.5	6.5	21.0	
44	6 05	12 17	6 08b	12 21a	12.6	15.5	9.3	13.6	0.9	0.6	.....	1.2	7.8	6.7	21.0	
45	6 20	0 07	6 18b	0 11b	12.0	14.8	8.9	13.0	0.9	0.6	.....	1.1	7.4	6.4	21.5	
46	6 10	12 22	6 08b	0 02b	12.1	14.9	9.0	13.1	0.9	0.6	.....	1.1	7.4	6.4	21.0	
47	6 25	0 12	6 23b	0 16b	11.7	14.4	8.7	12.7	0.8	0.5	.....	1.1	7.2	6.2	21.0	
48	6 27	0 14	6 25b	0 18b	11.6	14.3	8.6	12.6	0.8	0.5	.....	1.1	7.2	6.2	21.0	
49	6 30	0 17	6 28b	0 21b	11.4	14.0	8.4	12.3	0.8	0.5	.....	1.0	7.0	6.1	21.0	
50	6 35	0 22	6 33b	0 26b	12.0	14.8	8.9	13.0	0.9	0.6	.....	1.1	7.4	6.4	21.0	
51	7 20	1 07	7 18a	1 11b	12.5	15.4	9.3	13.5	0.9	0.6	.....	1.1	7.7	6.6	21.0	
52	7 30	1 17	7 28a	1 22b	12.0	14.7	8.8	12.8	0.8	0.5	.....	1.1	7.4	6.4	20.5	
53	7 40	1 27	7 38a	1 32b	12.1	14.9	9.0	13.1	0.9	0.6	.....	1.1	7.4	6.4	20.5	
54	8 15	1 49	8 13a	1 53b	11.0	13.5	8.1	11.9	0.8	0.5	.....	1.0	6.8	5.9	20.5	
55	9 35	3 22	9 31a	3 28b	7.3	9.0	5.4	8.0	0.6	0.4	.....	0.8	4.5	3.9	20.5	
56	10 15	4 03	10 10a	4 11b	3.2	3.8	2.6	3.8	0.5	0.3	.....	0.5	1.9	1.8	20.5	
57	10 30	4 18	10 26a	4 25b	5.6	6.7	4.5	6.2	0.6	0.3	.....	0.7	3.4	3.0	20.5	
58	10 42	4 06	10 39a	4 11b	7.9	9.3	6.3	8.7	0.7	0.4	.....	0.8	4.7	4.3	20.0	
59	11 00	4 48	10 56a	4 54b	9.3	11.1	7.4	10.2	0.8	0.5	.....	0.9	5.6	5.0	20.6	
60	10 40	4 28	10 36a	4 32b	11.7	13.9	9.4	12.7	0.9	0.5	.....	1.0	7.0	6.3	20.0	



TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of ranges.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			H.W.	L.W.	H.W.	L.W.	
EUROPE (WEST COAST)—Cont'd.											
THE BRITISH ISLANDS—continued.											
Ireland, east coast—Continued.											
		North.	West.				Local time.		Mean Low Water Springs.		
		° ' "	° ' " h. m.				h. m.	h. m.	feet.	feet.	
1	Strangford	54 21	5 34	0 22	Kingstown	313	+1 45	+1 33	-0.3	-0.2	0.99
2	Newcastle, Dundrum Bay	54 11	5 54	0 24	Kingstown	313	-0 02	+0 11	+3.3	+0.4	1.34
3	Cranfield Pt., Carlingford Lough	54 01	6 04	0 24	Kingstown	313	-0 07	+0 06	+4.4	-0.5	1.44
4	Newry, Carlingford Lough	54 09	6 22	0 25	Kingstown	313	+0 38	+0 51	+2.0	+0.3	1.20
5	Dundalk	53 59	6 18	0 25	Kingstown	313	-0 12	+0 01	+3.5	+0.4	1.35
6	Drogheda, Boyne River	53 43	6 15	0 25	Kingstown	313	-0 07	+0 06	+0.6	+0.1	1.06
7	Balbriggan	53 37	6 11	0 25	Kingstown	313	-0 27	-0 14	+1.7	+0.2	1.16
8	Howth	53 24	6 04	0 24	Kingstown	313	+0 03	+0 16	+1.7	+0.2	1.17
9	Dublin, Poolbeg Light	53 20	6 09	0 25	Kingstown	313	+0 08	+0 21	+1.9	+0.2	1.19
10	KINGSTOWN, Dublin Bay	53 18	6 08	0 25	Kingstown	313	0 00	0 00	0.0	0.0	1.00
11	Bray Head	53 11	6 07	0 24	Kingstown	313	-0 22	-0 09	+0.8	+0.1	1.07
12	Wicklow	52 58	6 00	0 24	Kingstown	313	-0 42	-0 29	-1.9	-0.2	0.80
13	Arklow	52 47	6 11	0 25	Kingstown	313	3 07	-2 54	-6.4	-0.7	0.34
14	Wexford	52 19	6 28	0 26	Kingstown	313	-3 47	-3 34	-5.5	-0.6	0.45
15	Tuskar	52 12	6 13	0 25	Kingstown	313	-5 22	-5 09	-1.9	-0.2	0.80
Ireland, south coast.											
16	Carnore	52 09	6 22	0 25	Queenstown	317	+1 12	+0 59	2.4	-0.4	0.77
17	Connibeg Rock, Saltee Islands	52 02	6 40	0 27	Queenstown	317	+0 52	+0 39	+1.1	+0.1	1.11
18	Waterford, Duncannon Fort	52 13	6 56	0 28	Queenstown	317	+0 32	+0 19	+0.7	+0.1	1.07
19	Dungarvan Light, Ballinacourty	52 04	7 33	0 30	Queenstown	317	+0 27	+0 14	+0.7	0.0	1.08
20	Youghal	51 57	7 51	0 31	Queenstown	317	+0 29	+0 16	+0.9	+0.1	1.09
21	Ballycotton	51 50	7 59	0 32	Queenstown	317	+0 07	-0 06	+0.2	0.0	1.02
22	QUEENSTOWN	51 51	8 18	0 33	Queenstown	317	0 00	0 00	0.0	0.0	1.00
23	Kinsale	51 42	8 30	0 34	Queenstown	317	-0 03	-0 16	-0.2	-0.1	0.99
24	Courtmacsherry	51 36	8 40	0 35	Queenstown	317	-0 13	-0 26	-0.8	-0.1	0.92
25	Clonakilty Bay	51 35	8 52	0 35	Queenstown	317	-0 18	-0 31	-0.7	-0.2	0.94
26	Castletownsend	51 30	9 10	0 37	Queenstown	317	-0 23	-0 36	-0.9	-0.2	0.92
27	Baltimore	51 28	9 24	0 38	Queenstown	317	-0 21	-0 34	-1.4	-0.3	0.88
28	Cape Clear	51 24	9 32	0 38	Queenstown	317	-0 43	-0 56	-2.5	-0.4	0.76
29	Crookhaven	51 29	9 43	0 39	Queenstown	317	-0 36	-0 49	-1.1	-0.3	0.84
Ireland, west coast.											
30	Dunmanus Harbor	51 30	9 44	0 39	Queenstown	317	-0 53	-1 06	-2.0	0.2	0.79
31	Castletown, Bearhaven	51 37	9 53	0 40	Queenstown	317	-0 33	-0 46	-1.9	-0.1	0.80
32	Valentia Harbor	51 56	10 19	0 41	Queenstown	317	-1 03	-1 16	-0.8	0.0	0.90
33	Castlemaine	52 08	9 43	0 39	Queenstown	317	-0 18	-0 31	+2.2	+0.6	1.17
34	Dingle	52 07	10 16	0 41	Queenstown	317	-0 53	-1 06	-0.9	+0.1	0.89
35	Smerwick Harbor	52 11	10 24	0 42	Queenstown	317	-0 53	-1 06	-0.3	+0.2	0.94
36	Tralee	52 16	9 53	0 40	Queenstown	317	-0 43	-0 56	+0.5	+0.3	1.02
37	Carraigaholt, Shannon River	52 35	9 41	0 39	Queenstown	317	-0 03	-0 16	+1.8	+0.4	1.15
38	Tarbert, Shannon River	52 36	9 22	0 37	Queenstown	317	+0 09	-0 04	+2.2	+0.6	1.19
39	Limerick, Shannon River	52 39	8 38	0 35	Queenstown	317	+1 27	+1 39	+4.1	+1.2	1.55
40	Liscannor Bay	52 55	9 21	0 37	Queenstown	317	-0 36	-0 36	+1.6	+0.4	1.13
41	Killeany, Arran Islands	53 07	9 38	0 39	Queenstown	317	-0 18	-0 31	-1.4	+0.4	1.11
42	Galway	53 14	9 04	0 36	Queenstown	317	-0 14	-0 40	-2.8	+0.6	1.25
43	Killickin Cove	53 17	9 41	0 39	Queenstown	317	-0 13	-0 26	-3.0	+0.7	1.20
44	Slyne Head	53 24	10 14	0 41	Queenstown	317	-0 17	-0 30	-1.3	+0.4	1.10
45	Inishbofin	53 37	10 15	0 41	Queenstown	317	-0 13	-0 26	+0.3	+0.2	1.01
46	Clare Island, Clew Bay	53 50	10 00	0 40	Queenstown	317	-0 08	-0 21	+0.3	+0.2	1.01
47	Westport, Clew Bay	53 47	9 32	0 38	Queenstown	317	+0 07	-0 06	+0.9	+0.4	1.08
48	Broadhaven Harbor	54 13	9 53	0 40	Kingstown	313	+6 24	+6 37	-0.8	+0.4	0.88
49	Killala Bay	54 14	9 12	0 37	Kingstown	313	+6 43	+6 56	-0.9	+0.3	0.86
50	Sligo Harbor, Oyster Island	54 18	8 34	0 34	Kingstown	313	+6 43	+6 56	+0.1	+0.5	0.96
51	Mullaghmore, Sligo Bay	54 27	8 26	0 34	Kingstown	313	+6 38	+6 51	0.0	+0.4	0.94
52	Donegal	54 37	8 07	0 32	Kingstown	313	+6 38	+6 51	+0.1	+0.5	0.96
53	Killybegs	54 36	8 27	0 34	Kingstown	313	+6 36	+6 49	0.0	+0.4	0.94
54	Lough Rossmore	54 47	8 31	0 34	Kingstown	313	+6 40	+6 53	-0.4	+0.4	0.92
Ireland, north coast.											
55	Ballyness Bar	55 08	8 08	0 33	Kingstown	313	+6 43	+6 56	+0.2	+0.4	0.98
56	Sheephaven	55 11	7 53	0 32	Kingstown	313	+6 58	+7 06	+0.4	+0.4	1.00
57	Mulroy Bay Bar	55 15	7 45	0 31	Kingstown	313	+7 01	+7 14	+0.4	+0.4	0.99
58	Rathmullan, Lough Swilly	55 08	7 30	0 30	Kingstown	313	+7 03	+7 16	+1.0	+0.6	1.06
59	Culdaff Bay	55 18	7 10	0 29	Kingstown	313	+7 13	+7 26	-2.2	+0.2	0.74
60	Moiville, Lough Foyle	55 10	7 02	0 28	Kingstown	313	+8 28	+8 41	-3.2	0.0	0.64
61	Londonderry, Lough Foyle	54 59	7 21	0 29	Kingstown	313	+9 21	+9 33	-2.8	0.0	0.60
62	Coleraine	55 09	6 45	0 27	Kingstown	313	+7 45	+7 58	-4.1	-0.2	0.58
63	Port Rush	55 13	6 32	0 26	Kingstown	313	+7 28	+8 06	-5.8	-0.3	0.43
64	Ballycastle Bay	55 12	6 15	0 25	Kingstown	313	+7 43	+8 21	-7.4	-0.6	0.24

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn.).	Spring (Sg.).	Neap (Np.).	Great tropic (Gc.).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	0 15	6 03	0 12b	6 08b	8.7	10.4	7.0	9.6	0.8	0.4	.....	0.9	5.2	4.8	20.0
2	10 50	4 38	10 47a	4 41b	11.7	14.6	8.5	11.3	0.7	0.8	.....	1.1	7.3	5.6	20.0
3	10 45	4 33	10 42a	4 36b	12.6	15.8	9.2	12.2	0.8	0.8	.....	1.1	7.9	6.1	20.0
4	11 30	5 18	11 27a	5 21b	10.5	13.1	7.7	10.1	0.7	0.8	.....	1.0	6.6	5.0	20.5
5	10 40	4 28	10 37a	4 31b	11.9	14.9	8.7	11.5	0.8	0.8	.....	1.1	7.4	5.7	20.0
6	10 45	4 33	10 42a	4 36b	9.3	11.6	6.8	8.9	0.7	0.7	.....	1.0	5.8	4.4	20.0
7	10 25	4 13	10 22a	4 16b	10.2	12.8	7.5	9.8	0.7	0.7	.....	1.0	6.4	4.9	20.0
8	10 55	4 43	10 52a	4 46b	10.2	12.7	7.5	9.8	0.7	0.7	.....	1.0	6.4	4.9	20.0
9	11 00	4 48	10 57a	4 51b	10.4	13.0	7.6	10.0	0.7	0.7	.....	1.0	6.5	5.0	20.0
10	10 52	4 27	10 49a	4 30b	8.8	10.9	6.4	8.4	0.7	0.7	.....	1.0	5.4	4.2	20.0
11	10 30	4 18	10 27a	4 21b	9.4	11.8	6.9	9.0	0.7	0.7	.....	1.0	5.9	4.5	20.0
12	10 10	3 58	10 06a	4 02b	7.0	8.7	5.1	6.7	0.6	0.6	.....	0.9	4.4	3.3	20.0
13	7 45	1 33	7 39a	1 39b	3.0	3.8	2.2	2.8	0.4	0.4	.....	0.6	1.9	1.4	20.0
14	7 05	0 53	7 01a	0 57b	3.9	4.9	2.9	3.7	0.4	0.5	.....	0.6	2.4	1.8	20.0
15	5 30	11 43	5 26a	11 47a	7.0	8.8	5.1	6.7	0.6	0.6	.....	0.9	4.4	3.3	19.5
16	5 45	11 58	5 42a	12 00a	6.9	8.9	4.5	7.1	0.6	0.4	.....	0.7	4.4	3.5	19.5
17	5 25	11 38	5 23a	11 40a	9.9	12.8	6.4	10.2	0.7	0.5	.....	0.8	6.4	5.1	20.0
18	5 05	11 18	5 03a	11 20a	9.5	12.3	6.2	9.8	0.7	0.5	.....	0.8	6.2	4.9	20.0
19	5 00	11 13	4 58a	11 15a	9.6	12.4	6.2	9.9	0.7	0.5	.....	0.8	6.2	5.0	20.5
20	5 02	11 15	5 00a	11 17a	9.7	12.6	6.3	10.0	0.7	0.5	.....	0.8	6.3	5.0	20.5
21	4 40	10 53	4 38a	10 55a	9.1	11.8	5.9	9.4	0.7	0.5	.....	0.8	5.9	4.7	20.5
22	4 33	10 59	4 31a	11 01a	8.9	11.6	5.8	9.2	0.7	0.5	.....	0.8	5.8	4.6	21.0
23	4 30	10 43	4 28a	10 45a	8.8	11.4	5.7	9.1	0.7	0.5	.....	0.8	5.7	4.5	21.0
24	4 20	10 33	4 18a	10 35a	8.2	10.7	5.3	8.6	0.6	0.4	.....	0.7	5.4	4.2	21.0
25	4 15	10 28	4 13a	10 30a	8.4	10.9	5.5	8.7	0.6	0.4	.....	0.7	5.4	4.3	21.0
26	4 10	10 23	4 08a	10 25a	8.2	10.6	5.3	8.5	0.6	0.4	.....	0.7	5.3	4.2	21.0
27	4 12	10 25	4 10a	10 27a	7.8	10.1	5.1	8.1	0.6	0.4	.....	0.7	5.0	4.0	21.5
28	3 50	10 03	3 48a	10 06a	6.8	8.8	4.4	7.1	0.6	0.4	.....	0.7	4.4	3.6	21.5
29	3 57	10 10	3 55a	10 12a	7.5	9.7	4.9	7.8	0.6	0.4	.....	0.7	4.8	3.9	21.5
30	3 40	9 53	3 39a	9 55a	7.0	9.4	4.1	7.4	0.4	0.7	.....	0.8	4.7	3.8	21.5
31	4 00	10 13	3 59a	10 15a	7.1	9.6	4.1	7.5	0.4	0.7	.....	0.8	4.8	3.9	21.5
32	3 30	9 43	3 29a	9 45a	8.0	10.8	4.6	8.4	0.4	0.8	.....	0.8	5.4	4.3	22.0
33	4 15	10 28	4 14a	10 29a	10.6	14.3	6.2	11.1	0.5	0.9	.....	1.0	7.2	5.6	21.5
34	3 40	9 53	3 39a	9 55a	7.9	10.7	4.6	8.3	0.4	0.8	.....	0.8	5.4	4.3	22.0
35	3 40	9 53	3 39a	9 55a	8.4	11.4	4.9	8.8	0.4	0.8	.....	0.9	5.7	4.5	22.0
36	3 50	10 03	3 49a	10 05a	9.1	12.3	5.3	9.5	0.5	0.8	.....	0.9	6.2	4.9	22.0
37	4 30	10 43	4 29a	10 46a	10.2	13.8	5.9	10.7	0.5	0.9	.....	1.0	6.9	5.4	22.0
38	4 42	10 55	4 41a	10 56a	10.6	14.3	6.2	11.1	0.5	0.9	.....	1.0	7.2	5.6	22.0
39	6 00	0 13	5 59a	0 14b	13.8	18.7	8.0	14.3	0.6	1.0	.....	1.1	9.4	7.3	21.5
40	4 10	10 23	4 09a	10 25a	10.1	13.7	5.9	10.6	0.5	0.9	.....	1.0	6.8	5.4	22.0
41	4 15	10 28	4 14a	10 30a	9.9	13.4	5.7	10.4	0.5	0.9	.....	1.0	6.7	5.2	22.0
42	4 19	10 19	4 18a	10 20a	11.1	15.1	6.4	11.6	0.5	0.9	.....	1.0	7.5	5.9	22.0
43	4 20	10 33	4 19a	10 34a	11.2	15.1	6.5	11.7	0.5	0.9	.....	1.0	7.6	5.8	22.0
44	4 16	10 29	4 15a	10 30a	9.8	13.2	5.7	10.3	0.5	0.8	.....	0.9	6.6	5.1	22.0
45	4 20	10 33	4 19a	10 35a	9.0	12.1	5.2	9.4	0.5	0.8	.....	0.9	6.0	4.7	22.5
46	4 25	10 58	4 24a	10 40a	9.0	12.2	5.2	9.4	0.5	0.8	.....	0.9	6.1	4.7	22.5
47	4 40	10 53	4 39a	10 55a	9.4	12.7	5.5	9.8	0.5	0.8	.....	0.9	6.4	4.9	22.0
48	4 50	11 03	4 49a	11 06a	7.7	10.4	4.5	8.1	0.4	0.8	.....	0.8	5.2	4.0	23.0
49	5 10	11 23	5 09a	11 25a	7.6	10.2	4.4	7.9	0.4	0.8	.....	0.8	5.1	4.0	22.5
50	5 10	11 23	5 09a	11 25a	8.4	11.4	4.9	8.8	0.4	0.8	.....	0.9	5.7	4.4	22.0
51	5 05	11 18	5 04a	11 20a	8.3	11.2	4.8	8.7	0.4	0.8	.....	0.9	5.6	4.4	22.0
52	5 06	11 18	5 04a	11 20a	8.4	11.4	4.9	8.8	0.4	0.8	.....	0.9	5.7	4.4	21.5
53	5 03	11 16	5 02a	11 18a	8.3	11.2	4.8	8.7	0.4	0.8	.....	0.9	5.6	4.4	22.0
54	5 07	11 20	5 06a	11 22a	8.1	10.9	4.7	8.5	0.4	0.8	.....	0.8	5.4	4.2	22.5
55	5 10	11 23	5 09a	11 25a	8.6	11.4	5.3	9.0	0.4	0.8	.....	0.9	5.7	4.5	22.0
56	5 20	11 33	5 19a	11 35a	8.8	11.7	5.4	9.2	0.4	0.8	.....	0.9	5.8	4.6	21.5
57	5 28	11 41	5 27a	11 43a	8.7	11.6	5.3	9.1	0.4	0.8	.....	0.9	5.8	4.5	21.5
58	5 30	11 43	5 29a	11 45a	9.3	12.4	5.7	9.7	0.5	0.9	.....	1.0	6.2	4.8	21.5
59	5 40	11 53	5 39a	11 55a	6.5	8.7	4.0	6.9	0.3	0.7	.....	0.8	4.4	3.5	21.0
60	6 55	0 43	6 54a	0 45b	5.6	7.5	3.4	6.0	0.3	0.7	.....	0.8	3.8	3.0	21.0
61	7 48	1 35	7 47a	1 37b	6.0	8.0	3.6	6.4	0.3	0.7	.....	0.8	4.0	3.2	21.5
62	6 12	0 00	6 11a	0 02b	4.7	6.2	2.9	5.1	0.3	0.7	.....	0.8	3.1	2.6	21.0
63	5 55	0 08	5 54a	0 10b	3.8	5.1	2.3	4.2	0.3	0.7	.....	0.8	2.6	2.1	21.0
64	6 10	0 23	6 09a	0 25b	2.1	2.8	1.3	2.5	0.2	0.6	.....	0.7	1.4	1.3	21.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of ranges.	
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.		LW.
EUROPE (WEST COAST)—Cont'd.											
THE BRITISH ISLANDS—continued.											
Hebrides, or Western Isles.											
		North.	West.				Local time.		Mean Low Water Springs.		
			o	h. m.			h. m.	h. m.	feet.	feet.	
1	St. Kilda Island.....	57 48	8 35	0 34	Kingstown .....	315	+ 6 53	+ 7 05	+ 0.8	+ 0.6	
2	Barra Head, Bernera Island.....	56 47	7 39	0 31	Kingstown .....	315	+ 7 08	+ 7 20	+ 0.1	+ 0.5	
3	Loch Skilport, S. Uist.....	57 20	7 08	0 29	Kingstown .....	315	+ 7 15	+ 7 27	+ 1.0	+ 0.6	
4	Loch Boisdale, S. Uist.....	57 09	7 10	0 29	Kingstown .....	315	+ 7 08	+ 7 20	+ 1.3	+ 0.7	
5	Loch Maddy, N. Uist.....	57 36	7 06	0 28	Kingstown .....	315	+ 7 28	+ 7 40	+ 1.2	+ 0.6	
6	Monach Island Light.....	57 32	7 42	0 31	Kingstown .....	315	+ 7 07	+ 7 19	+ 0.8	+ 0.6	
7	East Loch Tarbert, Harris Id.....	57 51	6 45	0 27	Kingstown .....	315	+ 7 29	+ 7 41	+ 2.0	+ 0.8	
8	West Loch Tarbert, Harris Id.....	57 55	6 55	0 28	Kingstown .....	315	+ 7 23	+ 7 35	+ 0.4	+ 0.4	
9	Stornoway, Lewis Island.....	58 11	6 22	0 25	Kingstown .....	315	+ 8 08	+ 8 20	+ 1.8	+ 0.8	
10	Bernera, Loch Roag, Lewis Id.....	58 14	6 50	0 27	Kingstown .....	315	+ 7 33	+ 7 45	+ 0.2	+ 0.4	
Orkney Islands.											
11	Stromness, Mainland, or Pomona I.....	58 58	3 31	0 14	Kingstown .....	315	- 2 02	- 1 50	- 1.2	+ 0.4	
12	Kirkwall, Mainland, or Pomona I.....	58 59	2 58	0 12	Kingstown .....	315	- 0 55	- 0 43	- 1.2	+ 0.2	
13	Otterswick, Sanday Island.....	59 16	2 33	0 10	Kingstown .....	315	- 1 50	- 1 38	- 0.2	+ 0.4	
Shetland Islands.											
14	Scaddon, Fair Isle.....	59 31	1 39	0 07	Kingstown .....	315	- 0 03	+ 0 09	- 5.4	- 0.4	
15	Sumburgh Head, Mainland Id.....	59 51	1 16	0 05	Kingstown .....	315	- 1 18	- 1 05	- 5.4	- 0.3	
16	Lerwick, Mainland Island.....	60 09	1 10	0 05	Kingstown .....	315	- 0 33	- 0 11	- 4.6	- 0.2	
17	Balta, Unst Island.....	60 45	0 50	0 03	Kingstown .....	315	- 1 23	- 1 11	- 4.2	- 0.2	
FAROE ISLANDS.											
18	Fuglœ Flord.....	62 19	6 16	0 25	Wilhelmshaven ..	323	- 1 48	- 1 47	- 6.8	- 0.6	
19	Leervigo Flord.....	62 15	6 43	0 27	Wilhelmshaven ..	323	- 0 09	- 0 07	- 6.9	- 0.5	
20	Myggenæs Flord.....	62 08	7 28	0 30	Wilhelmshaven ..	323	- 4 03	- 4 02	- 4.4	- 0.2	
21	Suderøe Flord.....	61 42	7 00	0 28	Wilhelmshaven ..	323	+ 5 20	+ 5 23	- 9.0	- 0.8	
BELGIUM.											
			East.				Greenwich time.				
22	Nieuport.....	51 09	2 43	0 11	Dover.....	299	+ 1 21	+ 0 20	- 2.7	+ 0.1	
23	Ostende.....	51 14	2 56	0 12	Dover.....	299	+ 1 17	+ 0 30	- 2.4	+ 0.2	
24	Blankenberghe.....	51 19	3 07	0 12	Dover.....	299	+ 1 15	+ 0 14	- 5.6	- 0.2	
25	Antwerp, Scheldt River.....	51 14	4 24	0 18	Dover.....	299	+ 5 19	+ 4 18	- 3.5	+ 0.1	
26	Liefkenshoek, Scheldt River.....	51 18	4 17	0 17	Dover.....	299	+ 4 20	+ 3 19	- 2.1	+ 0.3	
NETHERLANDS, OR HOLLAND.											
							Amsterdam time, 15° 55' East.				
27	Vlissingen or Flushing, Schelde R.....	51 26	3 34	0 14	Wilhelmshaven ..	323	+ 0 34	+ 0 56	+ 1.2	- 0.2	
28	Ter Neuzen, Schelde R.....	51 21	3 50	0 15	Wilhelmshaven ..	323	+ 1 01	+ 1 21	+ 1.9	- 0.3	
29	Hansweert, Schelde R.....	51 26	4 00	0 16	Wilhelmshaven ..	323	+ 1 49	+ 1 59	+ 2.6	- 0.4	
30	Wemeldinge.....	51 31	3 59	0 16	Wilhelmshaven ..	323	+ 2 18	+ 1 51	- 0.7	- 0.6	
31	Zierikzee.....	51 38	3 54	0 16	Wilhelmshaven ..	323	+ 1 54	+ 1 31	- 2.3	- 0.7	
32	Brouwershaven.....	51 43	3 55	0 16	Wilhelmshaven ..	323	+ 1 33	+ 1 14	- 3.8	- 0.8	
33	Hellevoetsluis.....	51 49	4 08	0 17	Wilhelmshaven ..	323	+ 2 17	+ 3 12	- 6.0	- 1.0	
34	Willemstad.....	51 42	4 26	0 18	Wilhelmshaven ..	323	+ 3 12	+ 4 13	- 5.1	- 1.0	
35	Dordrecht, Oude-Maas R.....	51 48	4 40	0 19	Wilhelmshaven ..	323	+ 4 35	+ 6 07	- 6.3	- 1.0	
36	Gorinchem, Rhine R.....	51 50	5 00	0 20	Wilhelmshaven ..	323	+ 5 19	+ 7 53	- 9.2	- 1.2	
37	Rotterdam, Nieuwe-Maas R.....	51 55	4 29	0 18	Wilhelmshaven ..	323	+ 3 31	+ 5 02	- 7.3	- 1.2	
38	Hoek van Holland.....	51 59	4 08	0 17	Wilhelmshaven ..	323	+ 1 34	+ 2 32	- 6.6	- 1.0	
39	Ymuiden.....	52 28	4 34	0 18	Wilhelmshaven ..	323	+ 2 23	+ 4 10	- 6.5	- 0.9	
40	Helder.....	52 58	4 46	0 19	Wilhelmshaven ..	323	+ 4 59	+ 6 26	- 8.3	- 1.0	
41	Vlieland.....	53 18	4 04	0 20	Wilhelmshaven ..	323	- 4 27	- 4 20	- 6.7	- 1.0	
42	Harlingen, Zuider Zee.....	53 11	5 24	0 22	Wilhelmshaven ..	323	- 3 50	- 2 57	- 7.9	- 1.0	
43	Durgedam, Zuider Zee.....	52 23	4 59	0 20	Wilhelmshaven ..	323	+ 0 07	+ 0 15	- 11.3	- 1.3	
44	West Terschelling Light.....	53 21	5 13	0 21	Wilhelmshaven ..	323	- 4 26	- 4 22	- 7.5	- 1.0	
45	Ameland Island Light.....	53 27	5 37	0 22	Wilhelmshaven ..	323	- 3 47	- 3 43	- 7.3	- 1.0	
46	Schiermonnikoog Island Light.....	53 29	6 09	0 25	Wilhelmshaven ..	323	- 3 30	- 3 26	- 7.7	- 1.0	
47	Delfzyl, Ems River.....	53 20	6 56	0 28	Wilhelmshaven ..	323	- 1 44	- 1 27	- 2.5	- 0.8	
GERMANY.											
							Time meridian, 15° East.				
48	Emden, Ems River.....	53 21	7 11	0 29	Wilhelmshaven ..	323	+ 0 25	+ 0 26	- 4.6	- 0.4	
49	Borkum Island, Ems River Entr.....	53 35	6 40	0 27	Wilhelmshaven ..	323	- 2 02	- 2 00	- 6.4	- 0.6	
50	Norderney Light.....	53 43	7 13	0 29	Wilhelmshaven ..	323	- 1 19	- 1 17	- 6.0	- 0.6	
51	Wangeroog Island, Jade R. Entr.....	53 47	7 54	0 32	Wilhelmshaven ..	323	- 1 00	- 0 58	- 5.3	- 0.5	

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring. (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i> °
1	5 20	11 32	5 19a	11 34a	9.0	12.2	5.2	9.4	0.5	0.9	.....	1.0	6.1	4.7	23.0
2	5 35	11 47	5 34a	11 49a	8.2	11.1	4.8	8.6	0.4	0.8	.....	0.9	5.6	4.3	22.0
3	5 42	11 54	5 41a	11 56a	9.1	12.3	5.3	9.5	0.5	0.9	.....	1.0	6.2	4.8	22.0
4	5 35	11 47	5 34a	11 49a	9.4	12.7	5.5	9.8	0.5	0.9	.....	1.0	6.4	4.9	22.0
5	5 55	12 07	5 54a	12 09a	9.3	12.5	5.4	9.7	0.5	0.9	.....	1.0	6.3	4.8	22.0
6	5 34	11 46	5 33a	11 48a	9.0	12.2	5.2	9.4	0.5	0.9	.....	1.0	6.1	4.7	22.5
7	5 56	12 08	5 55a	12 10a	10.0	13.5	5.8	10.4	0.5	0.9	.....	1.0	6.8	5.2	22.0
8	5 50	12 02	5 49a	12 04a	8.7	11.7	5.0	9.1	0.4	0.8	.....	0.9	5.8	4.5	22.0
9	6 35	0 22	6 34a	0 22b	9.9	13.4	5.7	10.3	0.5	0.9	.....	1.0	6.7	5.1	22.0
10	6 00	12 12	5 59a	12 14a	8.1	11.0	4.7	8.5	0.4	0.8	.....	0.9	5.5	4.2	22.0
11	8 50	2 37	8 49a	2 39b	7.3	9.9	4.2	7.7	0.3	0.7	.....	0.8	5.0	3.8	20.0
12	9 57	3 44	9 56a	3 46b	7.3	9.8	4.2	7.7	0.3	0.7	.....	0.8	4.9	3.8	20.0
13	9 08	2 50	9 02a	2 52b	8.1	11.0	4.7	8.5	0.4	0.8	.....	0.9	5.5	4.3	19.5
14	10 50	4 37	10 49a	4 39b	3.7	5.0	2.2	4.1	0.2	0.6	.....	0.7	2.5	2.1	19.0
15	9 35	3 22	9 34a	3 24b	3.8	5.2	2.2	4.2	0.2	0.6	.....	0.7	2.6	2.1	19.0
16	10 20	4 17	10 19a	4 19b	4.4	6.0	2.6	4.8	0.3	0.7	.....	0.8	3.0	2.4	19.0
17	9 30	3 17	9 29a	3 19b	4.7	6.4	2.7	5.1	0.3	0.7	.....	0.8	3.2	2.6	19.0
18	11 05	4 52	11 04a	4 54b	4.8	6.5	2.8	5.2	0.3	0.7	.....	0.8	3.2	2.7	23.5
19	0 20	6 32	0 19b	6 34b	4.7	6.4	2.7	5.1	0.3	0.7	.....	0.8	3.2	2.6	23.5
20	8 50	2 37	8 49a	2 39b	6.8	9.3	3.9	7.2	0.3	0.7	.....	0.8	4.6	3.5	24.0
21	5 50	12 02	5 48a	12 04a	2.9	4.0	1.7	3.3	0.2	0.6	.....	0.7	2.0	3.7	23.5
22	0 10	6 22	0 15b	6 21b	12.3	15.7	8.4	13.5	0.3	0.9	.....	1.0	7.8	6.9	14.0
23	0 07	6 33	0 12b	6 32b	12.6	16.1	8.5	13.8	0.3	1.0	5 48	1.0	8.0	7.1	14.0
24	0 06	6 17	0 11b	6 15b	9.8	12.5	6.7	10.9	0.3	0.8	.....	1.0	6.2	5.6	14.0
25	4 15	10 27	4 21b	10 26b	11.5	14.8	7.8	12.6	0.3	0.8	.....	1.0	7.4	6.4	13.5
26	3 15	9 27	3 20b	9 26b	12.7	16.3	8.6	13.9	0.3	0.9	.....	1.0	8.2	7.1	13.5
27	0 57	7 30	1 49b	8 24a	12.5	14.8	9.7	13.2	0.6	0.8	.....	1.0	7.4	6.7	14.0
28	1 25	7 56	2 22b	8 48a	13.3	15.5	10.8	14.1	0.6	0.8	.....	1.0	7.7	7.5	14.0
29	2 14	8 35	3 10b	9 28a	14.1	16.1	12.7	14.9	0.7	0.8	.....	1.1	8.0	7.9	14.0
30	2 43	8 27	3 35b	9 11a	11.0	12.4	9.3	12.0	1.1	1.0	.....	1.4	6.2	6.0	14.0
31	2 19	8 07	3 10b	8 46a	9.5	10.8	8.1	10.5	1.0	0.9	.....	1.4	5.4	5.2	14.0
32	1 58	7 50	2 40b	8 26a	8.1	9.2	6.8	9.0	1.0	0.8	.....	1.8	4.6	4.4	13.5
33	2 43	9 49	3 36b	10 42a	6.1	6.8	5.4	6.9	1.0	0.5	.....	1.1	3.4	3.3	13.5
34	3 40	10 52	4 35b	12 08a	7.0	7.7	6.2	7.7	1.0	0.5	.....	1.1	3.8	3.8	13.5
35	5 04	0 22	6 01b	1 06b	5.8	6.2	5.4	6.4	0.8	0.5	.....	0.9	3.2	3.1	13.5
36	5 49	2 09	6 37b	2 52b	3.1	3.4	2.7	3.6	0.8	0.3	.....	0.8	1.7	1.7	13.5
37	3 59	11 41	5 00b	12 33a	5.0	5.4	4.6	5.7	1.0	0.4	.....	1.1	2.7	2.7	13.5
38	2 00	9 09	2 44b	10 42a	5.5	6.2	4.7	6.2	1.0	0.4	18 01	1.1	3.1	3.0	13.5
39	2 51	10 49	3 33b	11 28a	5.5	6.4	4.5	6.1	0.8	0.3	18 17	0.9	3.2	2.9	13.5
40	5 28	0 41	7 01b	1 32a	3.8	4.3	2.7	4.5	0.9	0.5	18 58	1.0	2.2	2.1	13.5
41	8 28	2 21	9 20b	3 23a	5.4	6.2	4.4	6.1	0.7	0.7	.....	1.0	3.1	3.0	13.5
42	9 07	3 46	9 56b	4 54a	4.2	4.8	3.5	4.6	0.7	0.3	.....	0.7	2.4	2.3	13.5
43	0 37	6 56	1 06b	7 52a	1.1	1.2	0.9	1.4	0.3	0.4	.....	0.5	0.6	0.7	13.5
44	8 30	2 20	9 52b	3 15a	4.6	5.2	3.9	5.3	0.8	0.6	.....	1.0	2.6	2.5	13.5
45	9 10	3 00	10 30b	3 55a	4.8	5.4	4.1	5.5	0.9	0.5	.....	1.1	2.7	2.6	13.5
46	9 30	3 20	10 50b	4 15a	4.4	5.0	3.7	5.1	0.7	0.4	.....	1.1	2.5	2.4	13.0
47	11 19	5 22	12 10b	6 12a	9.4	10.7	8.0	10.3	0.7	1.0	.....	1.2	5.3	5.2	12.5
48	0 24	6 36	0 19a	6 44a	7.0	8.9	5.0	7.3	0.9	0.5	.....	1.0	4.4	3.6	12.5
49	10 20	4 08	10 14b	4 17a	5.4	6.8	3.8	5.7	0.7	0.5	.....	0.9	3.4	2.8	13.0
50	11 06	4 53	10 59b	5 02a	5.8	7.3	4.1	6.1	0.8	0.5	.....	0.9	3.6	3.0	12.5
51	11 27	5 15	11 21b	5 24a	6.3	8.0	4.5	6.6	0.8	0.5	.....	1.0	4.0	3.2	12.0

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.		Standard port for reference.		Tidal differences.				Ratio of ranges.	
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.		LW.
EUROPE (WEST COAST)—Cont'd.											
GERMANY—continued.											
North Sea—Continued.											
		North.	East.				Time meridian, 15° East.		Mean Low Water Springs.		
		°	°	h. m.			h. m.	h. m.	feet.	feet.	
1	Hooksiel, Jade River .....	53 38	8 02	0 32	Wilhelmshaven ..	323	- 0 37	- 0 35	-2.8	-0.2	0.77
2	WILHELMSHAVEN, Jade River .....	53 31	8 09	0 33	Wilhelmshaven ..	323	0 00	0 00	0.0	0.0	1.00
3	Weser River Entr., light vessel ..	53 48	8 08	0 33	Wilhelmshaven ..	323	+ 0 07	+ 0 09	-3.9	-0.3	0.68
4	Hohe Weg Light, Weser River .....	53 43	8 15	0 33	Wilhelmshaven ..	323	+ 0 22	+ 0 24	-3.4	-0.4	0.72
5	Bremerhaven, Weser River .....	53 33	8 34	0 34	Wilhelmshaven ..	323	+ 0 50	+ 0 52	-3.2	-0.2	0.74
6	Braake, Weser River .....	53 20	8 29	0 34	Wilhelmshaven ..	323	+ 2 36	+ 2 38	-4.2	-0.4	0.66
7	Elsfleth, Weser River .....	53 14	8 28	0 34	Wilhelmshaven ..	323	+ 2 56	+ 2 58	-5.4	-0.6	0.56
8	Vegesack, Weser River .....	53 11	8 37	0 34	Wilhelmshaven ..	323	+ 3 36	+ 3 38	-8.2	-0.8	0.34
9	Helgoland Island .....	54 11	7 53	0 32	Wilhelmshaven ..	323	- 0 58	- 0 56	-5.2	-0.6	0.58
10	Elbe R. E., outer light vessel No. 1.	54 00	8 15	0 33	Wilhelmshaven ..	323	+ 0 02	+ 0 04	-4.2	-0.4	0.67
11	Cuxhaven, Elbe River .....	53 52	8 42	0 35	Wilhelmshaven ..	323	+ 0 34	+ 0 35	-3.4	-0.4	0.73
12	Brunsbüttel, Elbe River .....	53 53	9 06	0 36	Wilhelmshaven ..	323	+ 1 37	+ 1 38	-3.8	-0.4	0.68
13	Glückstadt, Elbe River .....	53 47	9 21	0 38	Wilhelmshaven ..	323	+ 2 34	+ 2 35	-3.4	-0.4	0.72
14	Brunshausen, Elbe River .....	53 37	9 31	0 39	Wilhelmshaven ..	323	+ 3 33	+ 3 34	-4.4	-0.4	0.65
15	Lühe, Elbe River .....	53 35	9 38	0 39	Wilhelmshaven ..	323	+ 3 51	+ 3 53	-4.8	-0.6	0.63
16	Hamburg, Elbe River .....	53 33	9 59	0 40	Wilhelmshaven ..	323	+ 4 50	+ 4 51	-7.0	-0.8	0.44
17	Elsum .....	54 08	8 52	0 35	Wilhelmshaven ..	323	+ 1 06	+ 1 08	-2.0	-0.2	0.85
18	Eider River Entr., light vessel ..	54 16	8 19	0 33	Wilhelmshaven ..	323	- 0 38	- 0 36	-3.8	-0.4	0.69
19	Tönning, Eider River .....	54 19	8 57	0 36	Wilhelmshaven ..	323	+ 1 39	+ 1 40	-2.5	-0.3	0.80
20	Husum .....	54 29	9 01	0 36	Wilhelmshaven ..	323	+ 2 04	+ 2 06	-2.8	-0.2	0.77
21	Pellworm Island .....	54 31	8 41	0 35	Wilhelmshaven ..	323	+ 1 35	+ 1 36	-3.8	-0.4	0.70
22	Wyk, Föhr Island .....	54 41	8 34	0 34	Wilhelmshaven ..	323	+ 1 31	+ 1 32	-5.4	-0.6	0.56
23	Amrum Island .....	54 38	8 23	0 34	Wilhelmshaven ..	323	+ 0 26	+ 0 27	-4.6	-0.4	0.63
24	Lister-deep, Fairway buoy .....	55 05	8 27	0 34	Cape Town .....	263	- 0 47	- 0 45	-0.6	0.0	1.24
DENMARK.											
North Sea.											
25	Sønderho, Fanø Island .....	55 20	8 28	0 34	Cape Town .....	263	+ 1 05	+ 1 06	+0.6	0.0	1.24
26	Nordby .....	55 27	8 25	0 34	Cape Town .....	263	+ 1 27	+ 1 27	+0.2	0.0	1.12
27	Hjerting .....	55 31	8 21	0 33	Cape Town .....	263	+ 1 29	+ 1 30	0.0	-0.2	1.16
28	Blaavand Point .....	55 33	8 05	0 32	Cape Town .....	263	+ 0 25	+ 0 26	+0.4	0.0	1.18
29	Horn Reefs .....	55 34	7 19	0 29	Cape Town .....	263	- 1 37	- 1 35	+0.2	0.0	1.12
30	Nymindégab .....	55 48	8 11	0 33	Apia .....	211	- 3 47	- 3 47	-1.0	-0.2	0.65
31	Thybo Ron .....	56 43	8 14	0 33	Apia .....	211	- 2 22	- 2 22	-1.3	-0.1	0.54
32	Hirtshals .....	57 35	9 57	0 40	Apia .....	211	- 2 11	- 2 11	-1.8	-0.2	0.38
33	Skagen or the Skaw .....	57 44	10 38	0 43	Galveston .....	123	-12 03	-10 55	-0.4	+0.2	1.01
34	Copenhagen, Baltic Sea .....	55 42	12 36	0 50	Galveston .....	123	+ 4 33	+ 5 16	-0.8	+0.2	0.73
NORWAY.											
35	Frederickstad .....	59 13	10 57	0 41	Astoria .....	151	- 7 31	- 8 20	-6.0	-1.2	0.24
36	Oscarsborg .....	59 41	10 37	0 42	Astoria .....	151	- 7 01	- 8 11	-6.6	-1.4	0.17
37	Christiania .....	59 55	10 44	0 43	Astoria .....	151	- 7 34	- 8 14	-6.6	-1.2	0.16
38	Frederiksvaern .....	59 01	10 05	0 40	Astoria .....	151	- 7 53	- 8 54	-6.6	-1.2	0.17
39	Oster-Risør .....	58 43	9 15	0 37	Astoria .....	151	- 8 22	- 9 17	-6.6	-1.2	0.16
40	Arendal .....	58 27	8 46	0 35	Astoria .....	151	- 9 06	- 9 29	-6.8	-1.2	0.13
41	Christiansand .....	58 08	8 00	0 32	Cape Town .....	263	+ 3 11	+ 2 59	-3.0	-0.4	0.24
42	Tananger .....	58 55	5 31	0 22	Cape Town .....	263	- 3 43	- 3 40	-2.6	-0.4	0.35
43	Stavanger .....	58 59	5 44	0 23	Cape Town .....	263	- 3 43	- 3 43	-2.4	-0.2	0.41
44	Skudenes .....	59 08	5 18	0 21	Cape Town .....	263	- 3 05	- 3 04	-2.2	-0.4	0.47
45	Bergen .....	60 24	5 18	0 21	Cape Town .....	263	- 3 02	- 3 09	-0.4	-0.2	0.94
46	Romsdals Islands .....	62 45	6 00	0 24	Wilhelmshaven ..	323	- 1 44	- 1 42	-7.5	-0.7	0.39
47	Christiansund .....	63 08	8 00	0 32	Wilhelmshaven ..	323	- 1 27	- 1 25	-7.2	-0.6	0.41
48	Trondhjem or Munkholm .....	63 27	10 24	0 42	Wilhelmshaven ..	323	- 1 19	- 1 19	-5.0	-0.4	0.58
49	Traen Islands .....	66 31	12 02	0 48	Wilhelmshaven ..	323	- 1 09	- 1 07	-6.4	-0.6	0.47
50	Vaero, Lofoten Islands .....	67 38	12 37	0 50	Wilhelmshaven ..	323	- 0 56	- 0 55	-4.7	-0.3	0.60
51	Andenaes, Lofoten Islands .....	69 12	16 11	1 05	Wilhelmshaven ..	323	+ 0 06	+ 0 08	-6.2	-0.6	0.51
52	Tromsø .....	69 40	19 00	1 16	Wilhelmshaven ..	323	+ 0 48	+ 0 50	-5.4	-0.6	0.56
53	Hammerfest .....	70 40	23 40	1 35	Wilhelmshaven ..	323	+ 1 13	+ 1 22	-5.0	-0.4	0.58
54	Vardø .....	70 20	31 06	2 04	Wilhelmshaven ..	323	+ 4 00	+ 4 08	-4.7	-0.4	0.63
RUSSIA.											
Local time.											
55	Petshenga Bay .....	69 38	31 24	2 06	Wilhelmshaven ..	323	+ 6 10	+ 6 26	-6.0	-0.6	0.52
56	Kola .....	68 49	33 00	2 12	Wilhelmshaven ..	323	+ 6 31	+ 6 46	-6.4	-0.6	0.49
57	Terberskoi Bay .....	69 07	35 09	2 21	Wilhelmshaven ..	323	+ 6 36	+ 6 40	-1.1	-0.1	0.91
58	Sem or Seven Islands .....	68 49	37 22	2 29	Wilhelmshaven ..	323	+ 7 26	+ 7 40	-2.0	-0.2	0.83
59	Sviatoi Noss .....	68 09	39 49	2 39	Wilhelmshaven ..	323	+ 8 31	+ 8 35	+0.1	+0.1	1.00

### AND TIDAL CONSTANTS.

443

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Ge).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>West.</i>
1	11 50	5 38	11 45b	5 45a	8.5	10.7	6.0	8.8	0.9	0.6		1.1	5.4	4.3	12.0
2	0 03	6 14	0 00a	6 19a	11.1	13.8	8.0	11.1	0.9	0.5	22 36	1.1	6.9	5.5	12.0
3	0 10	6 23	0 05a	6 30a	7.5	9.5	5.3	7.8	0.9	0.6		1.0	4.8	3.8	12.0
4	0 25	6 38	0 19a	6 47a	8.0	10.1	5.7	8.3	0.9	0.6		1.1	5.0	4.1	11.5
5	0 54	7 07	0 49a	7 14a	8.2	10.4	5.8	8.5	0.9	0.6		1.1	5.2	4.2	11.5
6	2 40	8 53	2 36a	9 00a	7.3	9.1	5.3	8.0	0.9	0.5		1.0	4.6	3.9	11.5
7	3 00	9 13	2 56a	9 21a	6.2	7.8	4.5	6.8	0.8	0.4		0.9	3.9	3.3	11.5
8	3 40	9 53	3 35a	10 02a	3.8	4.7	2.7	4.3	0.6	0.3		0.7	2.4	2.1	11.5
9	11 21	5 36	11 21b	5 43a	6.8	7.7	5.6	7.3	0.9	0.5	21 51	0.9	3.9	3.6	12.0
10	0 05	6 18	0 01a	6 25a	7.4	9.2	5.3	8.1	0.9	0.5		1.0	4.6	4.0	12.0
11	0 39	6 51	0 36a	6 57a	8.1	10.1	5.8	8.8	0.9	0.5		1.0	5.0	4.3	11.5
12	1 43	7 55	1 39a	8 02a	7.6	9.5	5.5	8.3	0.9	0.5		1.0	4.8	4.1	11.5
13	2 42	8 54	2 39a	9 00a	8.0	10.0	5.8	8.7	0.9	0.5		1.0	5.0	4.3	11.0
14	3 41	9 53	3 37a	10 00a	7.2	9.0	5.2	7.9	0.9	0.5		1.0	4.5	3.9	11.0
15	4 00	10 13	3 56a	10 20a	6.8	8.5	4.9	7.5	0.8	0.5		0.9	4.2	3.7	11.0
16	5 00	11 12	4 55a	11 20a	4.9	6.1	3.5	5.5	0.7	0.4		0.8	3.0	2.7	11.0
17	1 11	7 24	1 08a	7 30a	9.4	11.7	6.8	10.2	1.0	0.5		1.1	5.8	5.0	11.5
18	11 50	5 38	11 46b	5 45a	7.7	9.6	5.5	8.4	0.9	0.5		1.0	4.8	4.1	11.5
19	1 45	7 57	1 42a	8 03a	8.9	11.0	6.4	9.7	1.0	0.5		1.1	5.5	4.7	11.5
20	2 10	8 23	2 06a	8 30a	8.6	10.8	6.2	9.3	0.9	0.5		1.1	5.4	4.6	11.5
21	1 40	7 52	1 38a	7 59a	7.8	9.7	5.6	8.5	0.9	0.5		1.0	4.8	4.2	11.5
22	1 35	7 47	1 31a	7 55a	6.2	7.8	4.5	6.8	0.8	0.4		0.9	3.9	3.3	11.5
23	0 30	6 42	0 26a	6 49a	7.0	8.8	5.0	7.7	0.9	0.5		1.0	4.4	3.8	11.5
24	0 20	6 38	0 15a	6 42a	4.2	5.2	3.0	4.7	0.7	0.3		0.7	2.6	2.3	12.0
25	2 12	8 24	2 07a	8 33a	4.2	5.3	3.0	4.7	0.7	0.3		0.7	2.6	2.3	12.0
26	2 34	8 46	2 29a	8 55a	3.8	4.7	2.7	4.3	0.6	0.3		0.7	2.4	2.1	12.0
27	2 35	8 47	2 30a	8 57a	3.6	4.5	2.6	4.1	0.6	0.3		0.7	2.2	2.0	12.0
28	1 30	7 42	1 25a	7 51a	4.0	5.0	2.9	4.5	0.6	0.3		0.7	2.5	2.2	12.0
29	11 50	5 38	11 45b	5 47a	3.8	4.8	2.7	4.3	0.6	0.3		0.7	2.4	2.1	12.5
30	2 35	8 47	2 27a	9 02a	1.7	2.1	1.2	1.9	0.2	0.1		0.5	1.0	0.9	12.0
31	4 00	10 12	3 52a	10 27a	1.4	1.8	1.0	1.6	0.2	0.1		0.4	0.9	0.8	12.0
32	4 18	10 30	4 07a	10 51a	1.0	1.2	0.7	1.1	0.1	0.0		0.4	0.6	0.5	11.5
33	[5 46]	[11 58]	7 01a	11 16a	[0.8]	[1.0]	[0.5]	1.5				1.2	0.5	0.8	11.0
34	[9 33]	[3 21]	11 05b	2 30b	[0.5]	[0.6]	[0.3]	1.1			1 06	0.9	0.3	0.6	10.0
35	5 02	10 30	5 19a	9 59a	1.5	1.8	1.4	2.5	0.7	0.9		1.0	0.9	1.0	11.0
36	4 28	10 41	5 45a	10 04a	1.1	1.3	1.0	1.9	0.6	0.7		0.9	0.6	0.7	11.0
37	4 50	10 37	5 45a	9 54a	1.0	1.2	0.9	1.8	0.6	0.7		0.9	0.6	0.7	11.0
38	4 34	10 00	4 56a	9 18a	1.1	1.3	1.0	1.9	0.6	0.7		1.0	0.6	0.8	11.5
39	4 08	9 40	4 31a	8 59a	1.0	1.2	0.9	1.8	0.6	0.7		0.9	0.6	0.7	12.0
40	3 26	9 30	4 43a	9 22a	0.8	1.0	0.7	1.5	0.5	0.6		0.8	0.5	0.6	12.0
41	4 16	10 15	4 11a	10 31a	0.8	1.1	0.5	1.2	0.2	0.1		0.2	0.6	0.6	12.5
42	9 36	3 25	9 31a	3 41b	1.2	1.6	0.7	1.7	0.3	0.1		0.3	0.8	0.8	14.0
43	9 46	3 23	9 39a	3 54b	1.4	1.9	0.8	1.9	0.3	0.1		0.3	1.0	0.9	14.0
44	10 13	4 00	10 09a	4 13b	1.6	2.1	0.9	2.1	0.3	0.1		0.3	1.0	1.0	14.0
45	10 16	3 55	10 12a	4 04b	3.2	4.1	2.1	3.8	0.4	0.1		0.4	2.0	1.8	14.5
46	10 35	4 23	9 58a	3 52b	4.3	5.7	2.8	4.6	0.3	0.4		0.5	2.8	2.4	14.5
47	11 00	4 48	10 26a	4 20b	4.6	6.0	2.9	4.9	0.3	0.4		0.5	3.0	2.5	13.0
48	11 18	5 04	10 49a	4 40b	6.4	8.4	4.1	6.8	0.4	0.5		0.6	4.2	3.4	11.5
49	11 35	5 23	10 58a	4 52b	5.2	6.9	3.3	5.6	0.4	0.5		0.6	3.4	2.8	11.0
50	11 50	5 37	11 22a	5 14b	6.7	8.8	4.3	7.1	0.4	0.5		0.6	4.4	3.6	10.5
51	0 42	6 55	0 42b	6 55b	5.6	7.0	4.0	5.7	0.7	0.4		0.8	3.5	2.8	7.5
52	1 35	7 48	1 35b	7 48b	6.2	7.8	4.4	6.8	0.7	0.4		0.8	3.9	3.1	5.5
53	2 20	8 40	2 20b	8 40b	6.6	8.3	4.7	7.2	0.8	0.4		0.9	4.2	3.3	2.0
54	5 38	11 57	5 40b	11 57b	7.2	9.0	5.1	7.8	0.8	0.4		0.9	4.5	3.6	3.0E
55	6 43	0 45	6 43b	0 45a	5.8	7.3	4.1	6.4	0.7	0.4		0.8	3.6	2.9	East.
56	7 04	1 05	7 04b	1 05a	5.4	6.7	3.8	5.9	0.7	0.3		0.8	3.4	2.7	4.0
57	7 10	1 00	7 10b	1 00a	10.1	12.6	7.2	10.9	1.0	0.5		1.1	6.3	5.0	6.0
58	8 10	2 00	8 10b	2 00a	9.2	11.5	6.5	9.8	0.9	0.4		1.0	5.8	4.6	7.0
59	9 05	2 55	9 05b	2 55a	11.1	13.9	7.8	11.9	1.0	0.5		1.1	7.0	5.6	8.5

TABLE 3.—TIDAL DIFFERENCES

Number.	Station.	Geographic position.			Standard port for reference.		Tidal differences.				Ratio of range.
		Latitude.	Longitude.		Name.	Page.	Time.		Height.		
			Arc.	Time.			HW.	LW.	HW.	LW.	
EUROPE (WEST COAST)—Cont'd.											
RUSSIA—continued.											
• White Sea.											
		North.	East.				Local time.		Mean Low Water Springs.		
		° ' "	° ' "	h. m.			h. m.	h. m.	feet.	feet.	
1	Cape Orlov .....	67 11	41 22	2 45	Brest .....	275	-5 44	-5 56	+0.4	-0.4	1.05
2	Morjovets Island .....	66 46	42 30	2 50	Brest .....	275	-5 12	-5 24	-2.0	-0.8	0.91
3	Mezen .....	65 48	44 20	2 57	Brest .....	275	-2 20	-2 13	-1.0	-0.6	0.97
4	Sosnovets Island .....	66 29	40 43	2 43	Brest .....	275	-4 48	-4 57	-1.2	-0.8	0.95
5	Tetrina .....	66 02	38 21	2 38	Cape Town .....	263	+1 30	+1 35	+1.8	0.0	1.53
6	Kandalaksha .....	67 08	32 28	2 10	Cape Town .....	263	+1 39	+2 03	+2.0	+0.2	1.59
7	Jigjinsk Island .....	65 12	36 49	2 27	Cape Town .....	263	+3 29	+3 43	-0.6	-0.2	0.88
8	Onega .....	63 57	38 07	2 32	Cape Town .....	263	-5 00	-4 38	+4.2	+0.4	2.15
9	Karetski Noes .....	65 38	39 40	2 39	Cape Town .....	263	+2 43	+2 57	+0.6	0.0	1.24
10	Archangel, Dwina River .....	64 36	40 41	2 43	Apla .....	211	+0 23	+1 18	-0.9	-0.1	0.65
SPITZBERGEN.											
11	Danes Island .....	79 41	11 02	0 44	Cape Town .....	263	-1 19	-1 19	+0.6	0.0	1.24
12	Recherche Bay .....	77 30	14 44	0 59	Cape Town .....	263	-0 37	-0 36	+1.9	+0.1	1.56
NOVA ZEMBLA.											
13	Cape Costin .....	70 58	53 10	3 33	Cape Town .....	263	+8 21	+8 25	+2.2	+0.2	1.65
14	Matoshkin Shar, west entrance .....	73 17	54 21	3 37	Cape Town .....	263	+7 51	+7 55	+2.6	+0.2	1.74
15	Mashigin Bay .....	74 43	56 12	3 45	Cape Town .....	263	+9 21	+9 25	+2.4	+0.2	1.71

Number.	Interval.				Range of tide.				Tropic diurnal inequality.		Diurnal wave.		Mean sea level above plane of—		Variation of the compass.
	Mean.		Tropic.		Mean (Mn).	Spring (Sg).	Neap (Np).	Great tropic (Gc).	HWQ.	LWQ.	Tropic HW interval.	Tropic range.	Predictions.	Tropic LLW.	
	HWI.	LWI.	HHWI.	LLWI.											
	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>f. et.</i>	<i>h. m.</i>	<i>feet.</i>	<i>feet.</i>	<i>feet.</i>	<i>East.</i> °
1	10 38	4 26	10 38 <i>b</i>	4 26 <i>a</i>	15.6	19.5	11.1	16.5	1.2	0.6	.....	1.3	9.8	7.8	9.0
2	11 10	4 58	11 10 <i>b</i>	4 58 <i>a</i>	13.5	16.8	9.6	14.2	1.1	0.5	.....	1.2	8.4	6.8	9.5
3	1 38	8 10	1 38 <i>a</i>	8 10 <i>a</i>	14.4	18.0	10.2	15.2	1.1	0.6	.....	1.3	9.0	7.2	10.0
4	11 34	5 25	11 34 <i>b</i>	5 25 <i>a</i>	14.2	17.7	10.1	15.0	1.1	0.6	.....	1.3	8.8	7.1	8.5
5	3 07	9 23	3 07 <i>a</i>	9 23 <i>a</i>	5.2	6.5	3.7	5.7	0.7	0.3	.....	0.8	3.2	2.6	7.0
6	3 15	9 50	3 15 <i>a</i>	9 50 <i>a</i>	5.4	6.7	3.8	5.9	0.7	0.3	.....	0.8	3.4	2.7	3.5
7	5 05	11 30	5 05 <i>a</i>	11 30 <i>a</i>	3.0	3.8	2.1	3.4	0.5	0.3	.....	0.6	1.9	1.5	6.0
8	9 02	3 10	9 02 <i>a</i>	3 10 <i>b</i>	7.3	9.1	5.2	7.9	0.8	0.4	.....	0.9	4.6	3.6	6.5
9	4 20	10 45	4 20 <i>a</i>	10 45 <i>a</i>	4.2	5.3	3.0	4.6	0.6	0.3	.....	0.7	2.6	2.1	8.0
10	7 18	2 00	7 18 <i>a</i>	2 00 <i>b</i>	1.8	2.2	1.3	2.1	0.4	0.2	.....	0.4	1.1	0.9	8.0
11	0 14	6 25	0 14 <i>b</i>	6 25 <i>b</i>	4.2	5.3	3.0	4.6	0.6	0.3	.....	0.7	2.6	2.1	<i>West.</i> 14.0
12	0 56	7 08	0 56 <i>b</i>	7 08 <i>b</i>	5.3	6.6	3.8	5.8	0.7	0.3	.....	0.8	3.3	2.6	10.5
13	10 00	3 50	10 00 <i>b</i>	3 50 <i>a</i>	5.6	7.0	4.0	6.2	0.7	0.4	.....	0.8	3.5	2.8	<i>East.</i> 16.0
14	9 30	3 20	9 30 <i>b</i>	3 20 <i>a</i>	5.9	7.4	4.2	6.5	0.7	0.4	.....	0.8	3.7	2.9	17.0
15	11 00	4 50	11 00 <i>b</i>	4 50 <i>a</i>	5.8	7.3	4.1	6.4	0.7	0.4	.....	0.8	3.6	2.9	18.5



TABLE 4.—HARMONIC CONSTANTS FOR THE PORTS

No.	Station.	K <sub>1</sub> K <sub>1</sub> °	K <sub>2</sub> K <sub>2</sub> °	L <sub>2</sub> L <sub>2</sub> °	M <sub>1</sub> M <sub>1</sub> °	M <sub>2</sub> M <sub>2</sub> °	M <sub>3</sub> M <sub>3</sub> °	M <sub>4</sub> M <sub>4</sub> °	N <sub>2</sub> N <sub>2</sub> °	O. O <sub>1</sub> °
1	St. John's, Newfoundland.....	0.245 108	0.120 259	0.020 211	.....	1.172 209.6	0.020 48	0.020 344	0.232 195	0.229 77
2	Halifax (Navy-Yard), Nova Scotia.....	0.338 60	0.136 257	0.109 238	0.012 57	2.085 223.5	0.116 25	0.014 72	0.453 205	0.116 38
3	St John, New Brunswick.....	0.496 128	0.466 4	0.572 358	.....	10.025 325.1	0.126 146	0.068 169	2.236 296	0.373 109
4	Portland (Central Wharf), Me.....	0.471 131	0.225 358	0.248 20	.....	4.336 823.6	0.034 75	0.042 71	0.957 292	0.345 109
5	Boston (Navy-Yard), Mass.....	0.443 141	0.182 16	0.303 4	0.030 121	4.439 335.4	0.056 164	0.189 262	1.017 304	0.365 113
6	Newport (Fort Adams), R. I.....	0.209 96	0.098 239	0.016 210	0.008 70	1.661 217.5	0.179 120	0.011 127	0.365 200	0.164 124
7	New London (Custom-House Wharf), Conn.....	0.245 112	0.066 284	0.052 342	0.003 303	1.140 274.8	0.066 65	0.040 139	0.262 248	0.179 137
8	Willels Point (U. S. Engineer School), N. Y.....	0.339 119	0.146 359	0.300 3	0.020 166	3.649 328.6	0.096 211	0.210 84	0.744 304	0.198 109
9	New York (Governors Island), N. Y.....	0.325 106	0.118 255	0.129 249	0.016 104	2.153 231.1	0.087 332	0.076 89	0.496 211	0.161 104
10	Sandy Hook (The Horseshoe), N. J.....	0.333 102	0.123 248	0.110 203	0.016 119	2.219 217.6	0.028 336	0.054 363	0.503 201	0.172 38
11	Philadelphia (Chestnut Street Pier), Pa.....	0.316 218	0.091 78	0.210 61	0.025 329	2.366 48.6	0.368 7	0.112 206	0.388 28	0.252 245
12	Old Point Comfort (Fort Monroe), Va.....	0.186 119	0.062 277	0.064 270	.....	1.220 248.4	0.039 244	0.016 191	0.269 226	0.138 143
13	Washington (Seventh street), D. C.....	0.152 272	0.074 268	0.117 251	0.020 346	1.373 228.9	0.074 358	0.030 54	0.241 205	0.121 291
14	Baltimore (Fells Point), Md.....	0.129 299	0.034 242	0.032 249	0.024 170	0.572 190.2	0.011 329	0.006 185	0.092 163	0.112 321
15	Wilmington (Cape Fear River), N. C.....	0.250 130	0.028 344	0.033 296	.....	1.152 292.1	0.183 149	0.026 278	0.175 298	0.156 169
16	Charleston (Custom-House Wharf), S. C.....	0.339 122	0.105 241	0.135 222	.....	2.483 213.6	0.090 242	0.025 311	0.559 196	0.248 125
17	Savannah Entrance (Tybee Light), Ga.....	0.341 114	0.154 246	0.135 198	.....	3.219 209.5	0.058 287	0.021 286	0.677 190	0.245 169
18	Fernandina (Dade street), Fla.....	0.346 127	0.133 267	0.146 222	0.013 137	2.854 228.3	0.032 296	0.032 8	0.585 213	0.252 129
19	Key West (Fort Taylor), Fla.....	0.274 274	0.049 284	0.023 276	.....	0.565 280.3	0.036 236	0.011 180	0.123 232	0.234 273
20	Galveston (Dowell's Wharf), Tex.....	0.346 321	0.018 132	0.014 174	.....	0.224 124.5	0.002 128	0.004 29	0.058 111	0.055 312
21	Buenos Ayres, Argentina.....	0.253 18	0.014 344	0.048 220	.....	0.814 184.7	0.073 90	0.018 292	0.341 149	0.448 211
22	Cape Horn (Orange Bay), Chile.....	0.707 36	0.064 128	0.062 109	0.020 350	1.931 104.2	0.016 197	0.017 313	0.491 66	0.567 347
23	Valparaiso, Chile.....	0.499 380	0.142 288	0.041 229	0.021 287	1.650 279.2	0.007 147	0.004 107	0.359 248	0.388 286
24	Panama (Naos Island), Panama.....	0.440 340	0.392 142	0.226 167	.....	5.928 86.7	0.218 358	0.041 276	1.297 54	0.185 34
25	San Diego (La Playa), Cal.....	1.073 95	0.207 206	0.046 245	0.039 97	1.701 276.6	0.026 186	0.010 112	0.408 257	0.665 79
26	San Francisco Entrance (Fort Point), Cal.....	1.218 106	0.116 327	0.073 0	0.044 83	1.696 330.7	0.086 32	0.012 342	0.363 304	0.766 88
27	Astoria (Columbia River), Oreg.....	1.316 129	0.220 24	0.157 11	0.052 132	2.971 8.6	0.100 317	0.034 106	0.586 346	0.788 11
28	Port Townsend (Puget Sound), Wash.....	2.511 148	0.157 131	0.104 151	0.108 162	2.217 105.6	0.131 290	0.083 233	0.471 75	1.45 1.7
29	Sitka, Alaska.....	1.504 125	0.320 22	0.109 28	0.029 150	3.591 2.8	0.013 140	0.002 94	0.758 336	0.87 11
30	Kadiak (St. Paul Harbor, Kadiak I.), Alaska.....	1.330 139	0.301 39	0.106 358	0.060 150	3.228 7.7	0.088 97	0.032 239	0.676 342	0.87 122
31	St. Michael (Norton Sound), Alaska.....	1.354 297	0.033 338	0.026 292	0.076 272	0.554 235.4	0.042 150	0.018 266	0.179 178	0.760 247
32	Yokohama (Nishihatoba), Japan.....	0.802 179	0.187 178	0.027 133	.....	1.566 154.3	0.048 98	0.012 109	0.236 145	0.621 161
33	Nagasaki, Japan.....	0.788 193	0.844 259	0.079 243	.....	2.837 228.9	.....	.....	0.550 213	0.624 183
34	Tientsin Entrance (Taku Light Ship), China.....	1.330 157	0.145 162	0.026 114	.....	3.474 94.4	0.281 99	.....	0.184 74	0.948 128
35	Shanghai (Wusung Inner Bar), China.....	0.656 207	0.281 77	0.058 59	.....	3.109 30.3	0.700 331	.....	0.401 2	0.462 149
36	Amoy (Inner Harbor), China.....	0.868 274	0.364 61	0.111 30	.....	6.125 1.2	0.042 92	.....	0.776 332	0.639 232

No.	$P_1$ $P_1^o$	$Q_1$ $Q_1^o$	$N_1$ $N_1^o$	$T_1$ $T_1^o$	$\lambda_1$ $\lambda_1^o$	$\mu_1$ $\mu_1^o$	$\nu_1$ $\nu_1^o$	$MS_1$ $MS_1^o$	$Sa$ $Sa^o$	$Ssa$ $Ssa^o$	Length of series analyzed.
1	0.083 86	0.045 61	0.480 254				0.046 197		0.200 268	0.071 217	Hourly Ordinates for 236 days beginning May 10, 1880.*
2	0.102 63	0.019 51	0.454 258			0.062 196	0.154 200	0.060 154	0.150 252	0.158 146	Hourly Ordinates for 5 years, 1851, 1852, 1860, 1861, and 1896-96.†
3	0.162 131	0.068 84	1.658 5			0.090 71	0.504 299	0.060 189	0.106 185	0.176 145	Hourly Ordinates for 4 years beginning April 30, 1894.†
4	0.188 182	0.065 83	0.684 0	0.040 0		0.021 208	0.215 302		0.200 178	0.016 181	Hourly Ordinates for 1 year beginning Aug. 1, 1864.*
5	0.148 187	0.067 125	0.707 14	0.042 14		0.025 340	0.211 306		0.094 116	0.081 99	Hourly Ordinates for 1 calendar year, 1869.*
6	0.069 115	0.047 116	0.384 237	0.023 237	0.012 238	0.078 199	0.060 204		0.144 168	0.067 145	Hourly Ordinates for 1 year beginning Apr. 1, 1892.*
7	0.078 114		0.214 238				0.045 263		0.241 163	0.120 90	Hourly Ordinates for 2 years, beginning Nov. 1, 1882, and May 12, 1899.*
8	0.091 134		0.644 352			0.088 305	0.112 312		0.153 110	0.113 111	Hourly Ordinates for 2 years, beginning July 1, 1891, and Jan. 1, 1894.*
9	0.105 104	0.031 103	0.413 257	0.073 183	0.025 186	0.063 217	0.093 241		0.245 127	0.173 47	Hourly Ordinates for 3 calendar years, 1876, 1877, and 1878.*
10	0.105 105	0.032 110	0.426 246			0.068 226	0.096 199		0.254 143	0.101 58	Hourly Ordinates for 8 calendar years, 1876 to 1881, 1887, and 1888.*
11	0.098 209		0.315 88	0.019 88		0.120 171	0.147 22	0.099 56	0.417 146	0.342 325	Hourly Ordinates for 2 calendar years, 1901 and 1902.*
12	0.064 114	0.044 130	0.227 269				0.064 228		0.320 126	0.106 161	Hourly Ordinates for 2 calendar years, 1865 and 1877.*
13	0.057 273	0.024 301	0.201 272	0.012 272			0.052 226		0.272 128	0.194 163	Hourly Ordinates for 1 calendar year 1899.*
14	0.051 314		0.075 225						0.260 123	0.060 35	Hourly Ordinates interpolated from High and Low Waters for 1 year beginning May 12, 1845.*
15	0.083 132	0.037 204	0.099 344				0.034 288	0.033 201	0.302 173	0.027 94	Hourly Ordinates from 7 a. m. to 6 p. m. for 2 calendar years, 1887 and 1890.*
16	0.111 120	0.048 127	0.433 240				0.110 198		0.288 186	0.165 84	Hourly Ordinates for 1 calendar year, 1859.*
17	0.118 114	0.060 122	0.586 235				0.118 200		0.217 124	0.103 25	Hourly Ordinates for 1 year beginning Oct. 6, 1889.*
18	0.110 125	0.055 133	0.509 258			0.082 273	0.117 210		0.406 186	0.308 207	Hourly Ordinates for 1 year beginning Jan. 1, 1899.*
19	0.091 273	0.058 271	0.172 280				0.024 235		0.377 216	0.075 86	Hourly Ordinates for 1 year beginning May 1, 1857.*
20	0.129 319	0.066 341	0.043 134				0.010 113		0.528 170	0.332 44	Hourly Ordinates for 1 calendar year, 1852.*
21	0.123 20	0.085 124	0.167 266				0.067 152		0.389 321	0.166 336	Hourly Ordinates interpolated from High and Low Waters for 1 calendar year, 1893.*
22	0.175 30	0.114 323	0.302 134	0.085 260	0.014 118	0.046 74	0.095 71		0.156 92	0.013 37	Hourly Ordinates for 1 year beginning Sept. 1, 1882.*
23	0.161 322	0.064 264	0.466 300			0.034 259	0.069 252		0.151 351	0.091 225	Hourly Ordinates for 1 year beginning Feb. 1, 1892.*
24	0.123 342	0.032 86	1.656 144		0.033 281	0.185 33	0.151 59		0.685 170	0.478 114	Hourly Ordinates for 1 calendar year, 1882.*
25	0.360 94	0.185 71	0.697 275	0.041 275	0.024 232	0.025 245	0.079 260	0.021 184	0.231 189	0.114 280	Hourly Ordinates for 3 calendar years, 1869-1871.*
26	0.368 104	0.124 83	0.382 335	0.023 335			0.070 307	0.039 37	0.398 156	0.184 221	Hourly Ordinates for 4 calendar years, 1863, 1864, 1865, and 1870.*
27	0.374 126	0.129 111	0.767 39	0.045 39	0.060 14	0.022 129	0.170 322	0.054 340	0.244 284	0.267 151	Hourly Ordinates for 2 calendar years, 1874 and 1875.*
28	0.800 147	0.237 119	0.546 130	0.032 130	0.032 166	0.081 853	0.094 84	0.067 313	0.270 288	0.131 225	Hourly Ordinates for 3 calendar years, 1874-1876.*
29	0.450 124	0.157 98	1.145 34	0.068 34		0.085 321	0.142 343		0.261 284	0.065 336	Hourly Ordinates for 1 year beginning June 27, 1893.*
30	0.444 134	0.161 112	1.077 41	0.064 41		0.067 322	0.123 350		0.899 216	0.495 49	Hourly Ordinates for 1 year beginning Sept. 1, 1885.*
31	0.448 297	0.150 228	0.121 338	0.007 338			0.035 186				Hourly Ordinates for 58 days in 1891, 29 days in 1898, and 58 days in 1899.*
32	0.298 175	0.127 142	0.731 185				0.046 146		0.341 190	0.100 118	Hourly Ordinates for 1 calendar year, 1893.*
33	0.263 193	0.121 178	1.173 259			0.068 199	0.108 215				Hourly Ordinates for 3 months, Mar., Apr., and May, 1891.†
34	0.440 155	0.184 110	0.532 157	0.031 154			0.036 77	0.086 161			High and Low Waters for 2 months, Sept. and Oct., 1888.*
35	0.217 207	0.090 120	1.032 77	0.061 76			0.078 6	0.465 18	1.518 128	0.478 73	High and Low Waters for 1 calendar year, 1893.*
36	0.287 272	0.124 241	1.338 57	0.079 55			0.151 336				High and Low Waters for 2 months, Jan. and Feb., 1892.*

TABLE 4.—HARMONIC CONSTANTS FOR THE PORTS

No.	Station.	$K_1$ $K_1^\circ$	$K_2$ $K_2^\circ$	$L_2$ $L_2^\circ$	$M_1$ $M_1^\circ$	$M_2$ $M_2^\circ$	$M_3$ $M_3^\circ$	$M_4$ $M_4^\circ$	$N_2$ $N_2^\circ$	$O_1$ $O_1^\circ$
37	Hongkong, China.....	1.190 29.3	0.147 280	0.083 274	0.060 100	1.438 266.5	0.076 322	0.014 140	0.280 255	0.904 246
38	Singapore, Malay Peninsula.....	0.949 100	0.818 345	0.197 310	.....	2.602 300.0	0.053 264	0.085 43	0.432 272	0.948 53
39	Batavia (Tandjong Priok), Java.....	0.876 143	0.072 268	0.080 89	.....	0.174 352.0	.....	.....	0.066 317	0.449 119
40	Manila (Pasig River Entr.), Philippine Islands..	0.986 320	0.062 324	0.018 330	0.031 332	0.722 310.2	0.016 347	0.010 274	0.126 291	0.928 279
41	Honolulu (Oahu Island), Hawaiian Islands.....	0.475 72	0.043 97	0.015 102	.....	0.523 109.4	0.001 28	0.002 69	0.086 98	0.260 60
42	Apia (Upolu Island), Samoan Islands.....	0.093 254	0.081 181	0.076 139	.....	1.255 186.0	.....	.....	0.308 166	0.070 243
43	Wellington, New Zealand.....	0.085 81	0.060 839	0.034 71	0.007 106	1.598 137	0.045 332	0.015 135	0.353 104	0.099 36
44	Auckland, New Zealand.....	0.241 167	0.171 265	0.144 209	0.011 144	3.782 204.8	0.200 74	0.100 67	0.760 174	0.071 121
45	Sydney (Fort Denison), New South Wales.....	0.419 129	0.102 268	0.065 237	.....	1.636 254.0	.....	.....	0.324 250	0.337 86
46	Melbourne (Williamstown), Victoria.....	0.294 132	0.028 172	0.013 74	.....	0.806 69.4	0.021 49	.....	0.098 65	0.216 95
47	Port Adelaide, South Australia.....	0.830 52	0.465 178	0.120 140	0.020 16	1.700 120.0	0.020 174	0.010 259	0.090 246	0.520 32
48	Rangoon, Burma.....	0.675 36	0.616 169	0.466 147	0.029 86	5.793 131.3	0.432 170	0.220 86	1.055 116	0.289 27
49	Calcutta (Kidderpore), India.....	0.392 54	0.447 94	0.206 71	0.026 107	3.634 57.6	0.740 87	0.154 322	0.669 44	0.206 21
50	Madras, India.....	0.292 342	0.117 277	0.041 300	0.013 337	1.087 250.2	0.007 198	0.008 157	0.237 242	0.098 327
51	Colombo (Ceylon), India.....	0.238 33	0.108 90	0.027 51	0.010 327	0.579 49.9	0.016 170	0.004 27	0.073 34	0.094 62
52	Bombay (Apollo Bandar), India.....	1.398 45	0.405 354	0.080 306	0.053 47	4.038 330.3	0.130 329	0.010 86	0.996 314	0.660 48
53	Karachi, India.....	1.294 46	0.278 819	0.080 297	0.044 43	2.587 293.7	0.028 7	0.048 206	0.605 277	0.654 47
54	Aden, Arabia.....	1.303 85	0.200 239	0.042 223	0.050 32	1.568 226.3	0.006 313	0.005 342	0.431 221	0.657 37
55	Cape Town (Table Bay), Africa.....	0.178 127	0.245 90	0.072 47	0.011 66	1.596 44.5	0.039 96	0.013 296	0.344 22	0.053 243
56	Lisbon (Arsenal), Portugal.....	0.209 89	0.441 83	0.154 61	.....	4.139 51.1	0.252 196	0.035 284	1.059 41	0.217 309
57	Rochelle, France.....	0.210 67	0.594 122	0.131 108	.....	5.822 92.3	0.915 356	0.079 309	1.223 72	0.283 321
58	Brest, France.....	0.207 69	0.712 137	0.244 96	0.007 166	6.763 99.2	0.182 85	0.116 325	1.388 80	0.222 324
59	Havre, France.....	0.297 119	0.846 331	0.601 302	.....	8.745 285.5	0.786 85	0.574 301	1.703 262	0.161 7
60	Edinburgh (Leith), Scotland.....	0.316 204	0.345 88	0.167 70	.....	5.988 48.5	0.231 178	0.243 284	1.152 27	0.623 70
61	Hull (Humber River), England.....	0.560 282	0.636 228	0.390 198	.....	7.561 175.8	0.345 253	0.164 211	1.254 164	0.433 119
62	Sheerness (Thames River Entrance), England...	0.377 14	0.470 47	0.347 6	.....	6.297 0.5	0.296 44	0.199 60	1.046 337	0.451 193
63	London (London Bridge), England.....	0.300 41	0.450 101	0.605 92	.....	8.313 55.0	0.821 20	.....	1.467 25	0.400 220
64	Dover, England.....	0.140 48	0.563 28	0.377 354	.....	7.203 336.1	0.740 229	0.173 102	1.853 320	0.183 186
65	Portland Breakwater, England.....	0.294 112	0.300 233	0.170 107	0.014 290	2.048 189.4	0.468 23	0.207 55	0.477 180	0.163 351
66	Liverpool, England.....	0.355 191	0.936 1	0.529 329	0.031 300	9.975 320.7	0.691 211	0.196 331	1.903 300	0.371 38
67	Greenock (Firth of Clyde), Scotland.....	0.193 224	0.284 27	0.259 816	.....	4.357 337.0	0.346 44	.....	0.707 309	0.241 54
68	Kingstown (Dublin Bay), Ireland.....	.....	0.280 351	0.221 320	.....	4.166 312.0	0.109 354	.....	0.794 290	.....
69	Queenstown (Cork Harbor), Ireland.....	.....	0.350 181	0.120 137	.....	4.215 185.0	0.110 180	.....	0.857 118	.....
70	Wilhelmshaven, Germany.....	0.255 41	0.440 72	0.668 31	.....	5.144 358.0	0.299 178	0.184 30	0.844 337	0.270 260

On the first line for each station the amplitudes (H) are given in feet, and on the second line the epochs ( $\alpha$ ) in degrees. The British system has been adopted throughout this table.

\* United States Coast and Geodetic Survey.

† Tidal and Current Survey of Canada.

No.	$P_1^\circ$	$Q_1^\circ$	$S_2^\circ$	$T_2^\circ$	$\lambda_2^\circ$	$\mu_2^\circ$	$\nu_2^\circ$	$MS_1^\circ$	$Sa^\circ$	$Ssa^\circ$	Length of series analyzed.
37	0.384 288	0.156 230	0.564 291	0.035 281		0.071 238	0.061 212	0.067 301	0.450 234	0.190 94	Hourly Ordinates for 2 calendar years, 1883 and 1889. §
38	0.291 93	0.190 16	1.067 318			0.051 97	0.058 226		0.308 209	0.312 234	Hourly Ordinates for 1 year beginning Oct. 1, 1882. §
39	0.244 143	0.104 111	0.184 291								Hourly Ordinates for 3 years, 1887-1888, 1890-1891, 1891-1892. §§
40	0.304 317	0.181 254	0.301 340	0.018 340			0.024 293		0.451 162	0.102 58	Hourly Ordinates for 1 year beginning Feb. 12, 1901.*
41	0.137 66	0.040 51	0.165 109				0.013 138		0.215 197	0.090 33	Hourly Ordinates for 1 year beginning June 17, 1891.*
42	0.030 252		0.289 184								From the German Tide Tables for 1903.
43	0.028 67	0.019 13	0.089 325				0.068 108		0.241 64	0.035 240	Hourly Ordinates for 1 calendar year, 1894.*
44	0.079 169	0.018 85	0.626 265	0.037 265	0.026 233	0.091 144	0.147 178		0.357 88	0.185 266	High and Low Waters for 2 calendar years, 1896* and 1900.††
45	0.139 129		0.375 268						0.093 16	0.008 97	High and Low Waters for 1 year, 1888. ††
46	0.097 129	0.042 77	0.103 164	0.006 161			0.018 66				High and Low Waters for 1 month, May, 1894.*
47	0.215 56	0.070 81	1.680 181	0.110 165			0.060 76	0.090 99	0.305 126	0.225 88	Hourly Ordinates for 2 years beginning Mar. 1, 1889, and Jan. 1, 1893. †
48	0.164 56	0.027 41	2.093 170	0.268 161	0.253 170	0.530 290	0.354 111	0.404 212	1.314 147	0.164 337	Hourly Ordinates for 16 years, 1880-1894, and 1900. †
49	0.141 44	0.029 85	1.502 100	0.139 149	0.089 93	0.237 187	0.227 22	0.673 80	2.853 156	0.984 330	Hourly Ordinates for 15 years, 1881-1894, and 1900. †
50	0.094 345	0.008 106	0.438 280	0.044 299	0.022 267	0.046 181	0.074 259	0.006 254	0.392 216	0.321 126	Hourly Ordinates for 11 years, 1880-1889, and 1900. †
51	0.072 26	0.032 88	0.391 95	0.084 54	0.024 44	0.017 104	0.018 41	0.009 253	0.813 308	0.133 111	Hourly Ordinates for 6 years beginning Feb. 1, 1884. †
52	0.406 44	0.137 49	1.606 4	0.168 15	0.028 210	0.200 305	0.187 311	0.138 30	0.107 349	0.136 204	Hourly Ordinates for 18 years, 1878-1894, and 1900. †
53	0.386 46	0.131 50	0.962 323	0.080 337	0.042 280	0.061 268	0.140 278	0.081 820	0.130 68	0.162 149	Hourly Ordinates for 28 years, 1868-1894, and 1900. †
54	0.393 31	0.148 38	0.684 246	0.062 240	0.027 198	0.075 193	0.098 227	0.017 157	0.381 356	0.127 131	Hourly Ordinates for 17 years, 1879-1894, and 1900. †
55	0.048 114	0.010 800	0.672 88				0.067 25		0.124 256	0.111 76	Hourly Ordinates for 1 calendar year, 1888.*
56	0.069 39	0.042 265	1.620 83	0.096 83		0.099 19	0.205 43	0.196 228			Hourly Ordinates for January, 1897.*
57	0.089 58	0.069 271	2.109 126	0.112 131		0.157 71	0.403 69	0.554 82	0.239 192	0.062 129	Hourly Ordinates for 1 calendar year, 1896.**
58	0.072 60	0.096 278	2.471 139	0.129 128		0.246 89	0.361 57	0.264 107	0.203 229	0.086 151	Hourly Ordinates for 2 calendar years, 1873 and 1875.**
59	0.089 103	0.029 344	2.888 333	0.184 323		0.348 320	0.462 268	0.407 170	0.311 218	0.148 151	Hourly Ordinates for 1 calendar year, 1895.**
60	0.104 204	0.121 4	2.004 88			0.143 9	0.223 30		0.177 220	0.082 118	Hourly Ordinates for 15 days beginning May 1, 1891.††
61	0.185 282	0.064 38	2.338 228	0.138 228	0.053 200	0.338 273	0.408 61				Hourly Ordinates for 29 days beginning May 9, 1864.*
62	0.135 350	0.067 283	1.750 56				0.203 340		0.209 196	0.046 155	Hourly Ordinates for 1 year beginning Dec. 21, 1843.*
63	0.100 18		1.640 110			0.340 159	0.465 43		0.124 112	0.131 197	Inferred from constants for Sheerness and British Tide Tables for 1894.
64	0.050 21		2.070 28			0.407 66	0.390 290	0.450 290			Hourly Ordinates for 3 calendar years, 1883, 1884, and 1885. §
65	0.108 106	0.032 290	1.074 239		0.082 112	0.374 191	0.115 135	0.267 81			Hourly Ordinates for 4 years, 1851, 1857, 1866, and 1870. §
66	0.128 182		3.161 6	0.235 327	0.228 330	0.255 33	0.529 286	0.406 258	0.362 238	0.142 189	Hourly Ordinates for 7 years, 1857-1860, and 1866-1870. §
67	0.063 137	0.040 327	1.036 42			0.106 272	0.137 312		0.485 240	0.058 183	High and Low Waters for 1 calendar year, 1897.*
68			1.030 356			0.108 25	0.223 277				Devised from British Tide Tables for 1894.
69			1.280 175			0.191 126	0.183 80				Devised from British Tide Tables for 1894.
70	0.101 59	0.134 202	1.365 70						0.301 190	0.049 242	From the German Tide Tables for 1903.

† Japanese Government.

‡ Proc. Roy. Soc. 1885, 1889, or 1902.

§ R. W. Chapman and Captain Inglis.

¶ Reports of the Survey of India.

\*\* Service Hydrographique de la Marine, France.

†† The Admiralty, London, England.

‡‡ J. P. Van der Stok.

TABLE 5.—ANNUAL VARIATION IN MEAN SEA LEVEL

Number.	Station.	January		February		March		April.		May.	
		1	16	1	16	1	16	1	16	1	16
		feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
1	St. Johns, Newfoundland.....	+0.3	+0.3	+0.2	+0.1	0.0	0.0	-0.1	-0.2	-0.2	-0.2
2	Halifax, Nova Scotia.....	+0.1	0.0	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	+0.1	+0.1
3	St. John, New Brunswick.....	0.0	-0.1	-0.2	-0.3	-0.3	-0.2	-0.2	-0.1	+0.1	+0.2
4	Portland, Me.....	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
5	Boston, Mass.....	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	0.0	+0.1	+0.1
6	Newport, R. I.....	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	0.0
7	New London, Conn.....	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	0.0	+0.1
8	Willetts Point, N. Y.....	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	+0.1	+0.1
9	New York, N. Y.....	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	0.0	+0.1	+0.2	+0.2
10	Sandy Hook, N. J.....	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	0.0	0.0	+0.1
11	Philadelphia, Pa.....	-0.5	-0.4	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3
12	Old Point Comfort, Va.....	-0.2	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	0.0	+0.1
13	Washington, D. C.....	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3	-0.1	0.0	+0.2
14	Baltimore, Md.....	-0.3	-0.3	-0.3	-0.3	-0.2	-0.1	0.0	0.0	+0.1	+0.1
15	Wilmington, N. C.....	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1
16	Charleston, S. C.....	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	-0.1	-0.1
17	Savannah Entrance, Ga.....	-0.3	-0.3	-0.3	-0.2	-0.1	0.0	0.0	+0.1	+0.1	+0.1
18	Fernandina, Fla.....	+0.3	+0.2	+0.1	-0.2	-0.3	-0.5	-0.7	-0.7	-0.6	-0.5
19	Key West, Fla.....	+0.1	0.0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
20	Galveston, Tex.....	-0.5	-0.6	-0.6	-0.6	-0.5	-0.3	-0.2	-0.1	-0.1	-0.1
21	Buenos Ayres, Argentina.....	+0.2	+0.3	+0.4	+0.5	+0.5	+0.5	+0.4	+0.2	0.0	-0.1
22	Cape Horn, South America.....	-0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.0	+0.1	+0.1	-0.1
23	Valparaiso, Chile.....	+0.1	+0.2	+0.2	+0.2	+0.2	+0.1	+0.1	0.0	0.0	0.0
24	Panama, Panama.....	-0.2	-0.4	-0.7	-1.0	-1.1	-0.9	-0.6	-0.3	-0.1	+0.2
25	San Diego, Cal.....	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.3	0.3	-0.3
26	San Francisco Entrance, Cal.....	+0.1	0.0	-0.1	-0.2	-0.4	-0.5	-0.5	-0.5	-0.4	-0.3
27	Astoria, Oreg.....	+0.4	+0.3	+0.1	0.0	-0.1	-0.2	-0.2	-0.1	0.0	0.0
28	Port Townsend, Wash.....	+0.4	+0.4	+0.4	+0.3	+0.2	0.0	-0.1	-0.2	-0.2	-0.2
29	Sitka, Alaska.....	+0.2	+0.2	+0.3	+0.3	+0.2	+0.1	+0.1	0.0	-0.1	-0.1
30	Kadiak (St. Paul Harbor), Alaska.....	0.0	-0.3	-0.5	-0.5	-0.5	-0.4	-0.4	-0.4	-0.5	-0.5
31	St. Michael, Alaska.....									0.7	-0.5
32	Yokohama, Japan.....	0.0	0.0	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.1
33	Nagasaki, Japan.....										
34	Tientsin Entrance, China.....										
35	Shanghai, China.....	-1.6	-1.9	-2.0	-1.8	-1.5	-1.0	-0.5	-0.1	+0.4	-0.5
36	Amoy, China.....										
37	Hongkong, China.....	+0.2	+0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.3
38	Singapore, Malay Peninsula.....	+0.4	+0.3	+0.2	0.0	-0.2	-0.3	-0.5	-0.6	-0.8	-0.5
39	Batavia, Java.....										
40	Manila, Philippine Islands.....	-0.4	-0.5	-0.5	-0.5	-0.5	-0.4	-0.3	-0.2	-0.1	-0.1
41	Honolulu, Hawaiian Islands.....	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.2
42	Apia, Samoa Islands.....										
43	Wellington, New Zealand.....	0.0	0.0	0.0	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1
44	Auckland, New Zealand.....	-0.2	0.0	+0.2	+0.3	+0.3	+0.3	+0.3	+0.3	+0.2	-0.2
45	Sydney, New South Wales.....	0.0	0.0	0.0	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	-0.1
46	Melbourne, Victoria.....										
47	Port Adelaide, South Australia.....	+0.1	0.0	-0.1	-0.3	-0.3	-0.2	-0.1	0.0	+0.1	-0.1
48	Rangoon, India.....	-0.8	-1.1	-1.2	-1.2	-1.2	-1.1	-1.0	-0.8	-0.6	-0.5
49	Calcutta, India.....	-1.8	-1.8	-1.8	-1.8	-1.8	-1.8	-1.9	-1.9	-1.8	-1.7
50	Madras, India.....	+0.3	+0.1	-0.2	-0.4	-0.5	-0.5	-0.5	-0.3	-0.2	-0.1
51	Colombo, Ceylon, India.....	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.1	-0.1
52	Bombay, India.....	+0.2	+0.2	+0.2	+0.2	+0.1	0.0	0.0	-0.1	-0.1	-0.1
53	Karachi, India.....	0.0	-0.1	-0.1	-0.2	-0.1	0.0	0.0	+0.1	+0.2	+0.2
54	Aden, Arabia.....	+0.1	+0.2	+0.2	+0.2	+0.3	+0.3	+0.3	+0.4	+0.4	+0.5
55	Cape Town, Africa.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56	Lisbon, Portugal.....										
57	Rochelle, France.....	0.0	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1
58	Brest, France.....	+0.2	+0.1	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
59	Havre, France.....	+0.2	+0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.3	-0.2
60	Edinburgh (Leith), Scotland.....	+0.1	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1
61	Hull, England.....										
62	Sheerness, England.....	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1
63	London, England.....	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	0.0	+0.1
64	Dover, England.....										
65	Portland Breakwater, England.....										
66	Liverpool, England.....	+0.4	+0.3	+0.1	0.0	-0.2	-0.3	-0.4	-0.4	-0.4	-0.5
67	Greenock, Scotland.....	+0.4	+0.3	+0.2	0.0	-0.1	-0.3	-0.4	-0.4	-0.5	-0.5
68	Kingstown, Ireland.....										
69	Queenstown, Ireland.....										
70	Wilhelmshaven, Germany.....	0.0	0.0	-0.1	-0.2	-0.2	-0.3	-0.3	-0.3	-0.3	-0.3

Number.	June		July		August		September		October		November		December	
	1	16	1	16	1	16	1	16	1	16	1	16	1	16
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
1	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	+0.1	+0.1	+0.2	+0.2
2	0.0	0.0	-0.1	-0.2	-0.3	-0.3	-0.2	-0.1	0.0	+0.2	+0.3	+0.3	+0.3	+0.2
3	+0.2	+0.2	+0.2	+0.1	0.0	0.0	-0.1	-0.1	0.0	0.0	+0.1	+0.1	+0.1	+0.1
4	-0.1	0.0	0.0	+0.1	+0.1	+0.2	+0.2	+0.2	+0.2	+0.2	+0.1	+0.1	0.0	0.0
5	+0.1	+0.1	+0.1	0.0	0.0	0.0	0.0	0.0	0.0	+0.1	+0.1	0.0	0.0	-0.1
6	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	0.0
7	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2	+0.2	+0.2	+0.2	+0.2	+0.1	0.0	-0.1
8	+0.2	+0.2	+0.2	+0.2	+0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0
9	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2	+0.2	+0.3	+0.3	+0.2	+0.1	0.0	-0.1	-0.3
10	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2	+0.2	+0.2	+0.3	+0.2	+0.2	+0.1	0.1	-0.2
11	-0.2	-0.1	+0.1	+0.3	+0.5	+0.7	+0.7	+0.7	+0.5	+0.3	0.0	-0.3	-0.4	-0.5
12	+0.3	+0.3	+0.4	+0.4	+0.3	+0.2	+0.2	+0.1	+0.1	0.0	0.0	0.0	-0.1	-0.2
13	+0.3	+0.4	+0.4	+0.3	+0.2	+0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	+0.1	+0.2	+0.2	+0.2	+0.2	+0.2	+0.3	+0.2	+0.2	+0.1	0.0	-0.1	-0.2	-0.2
15	-0.1	0.0	+0.1	+0.1	+0.2	+0.2	+0.3	+0.3	+0.3	+0.3	+0.2	+0.2	+0.1	0.0
16	-0.1	-0.1	-0.1	-0.1	-0.1	+0.1	+0.2	+0.3	+0.4	+0.4	+0.4	+0.3	+0.2	0.0
17	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2	+0.2	+0.2	+0.2	+0.1	0.0	-0.1	-0.2	-0.2
18	-0.2	0.0	+0.2	+0.4	+0.4	+0.4	+0.3	+0.2	+0.1	+0.1	+0.2	+0.2	+0.3	+0.3
19	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	+0.1	+0.3	+0.4	+0.4	+0.4	+0.4	+0.3	+0.3
20	-0.1	-0.2	-0.1	0.0	+0.1	+0.3	+0.5	+0.7	+0.8	+0.8	+0.6	+0.4	+0.1	-0.2
21	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	+0.1
22	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	+0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.2
23	0.0	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	+0.1
24	+0.3	+0.3	+0.3	+0.2	+0.1	+0.1	+0.2	+0.4	+0.6	+0.8	+0.8	+0.8	+0.5	+0.2
25	-0.2	-0.1	0.0	+0.1	+0.2	+0.3	+0.3	+0.3	+0.2	+0.2	+0.1	0.0	0.0	0.0
26	-0.1	+0.1	+0.2	+0.3	+0.4	+0.4	+0.4	+0.3	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2
27	+0.1	0.0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.3	-0.2	0.0	+0.2	+0.4	+0.5	+0.5
28	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	+0.1	+0.2	+0.3
29	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.1	0.0	0.0	+0.1	0.0	+0.1	+0.2	+0.2
30	-0.7	-0.8	-0.9	-0.7	-0.2	+0.2	+0.4	+0.8	+1.1	+1.2	+1.2	+1.1	+0.8	+0.4
31	-0.2	+0.1	+0.5	+0.7	+0.7	+0.6	+0.3	-0.1	-0.5					
32	-0.1	0.0	0.0	0.0	+0.1	+0.1	+0.2	+0.3	+0.3	+0.4	+0.4	+0.3	+0.3	+0.1
33														
34														
35	+1.0	+1.0	+1.1	+1.1	+1.1	+1.1	+1.1	+1.1	+1.0	+0.8	+0.4	0.0	-0.5	-1.1
36														
37	-0.3	-0.3	-0.4	-0.4	-0.3	-0.2	0.0	+0.2	+0.4	+0.5	+0.6	+0.6	+0.6	+0.4
38	-0.3	-0.1	+0.1	+0.3	+0.3	+0.3	+0.2	+0.1	+0.1	0.0	0.0	+0.1	+0.2	+0.3
39														
40	0.0	+0.1	+0.2	+0.2	+0.3	+0.4	+0.5	+0.5	+0.5	+0.4	+0.3	+0.2	0.0	-0.2
41	-0.2	-0.1	-0.1	0.0	0.0	+0.1	+0.2	+0.3	+0.3	+0.3	+0.3	+0.2	+0.1	0.0
42														
43	+0.1	+0.1	+0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	-0.1
44	+0.2	+0.2	+0.2	+0.1	+0.1	0.0	-0.1	-0.2	-0.3	-0.4	-0.5	-0.5	-0.4	-0.5
45	+0.1	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0
46														
47	+0.3	+0.4	+0.3	+0.3	+0.2	+0.1	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.1	0.0
48	+0.1	+0.4	+0.8	+1.1	+1.3	+1.5	+1.5	+1.4	+1.2	+0.8	+0.5	+0.4	+0.3	+0.3
49	-0.8	-0.1	+0.9	+1.8	+2.8	+3.4	+3.6	+3.3	+2.7	+1.8	+0.9	-0.2	-0.9	-1.5
50	-0.1	0.0	-0.1	-0.1	-0.2	-0.2	-0.1	0.0	+0.2	+0.4	+0.6	+0.7	+0.7	+0.6
51	0.0	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	+0.1	+0.2	+0.2	+0.2
52	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	0.0	+0.1	+0.2
53	+0.3	+0.3	+0.2	+0.1	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.0
54	+0.2	+0.1	0.0	-0.1	-0.3	-0.4	-0.5	-0.5	-0.5	-0.3	-0.2	-0.1	0.0	0.0
55	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	+0.1	+0.2	+0.2	+0.2	+0.2	+0.1
56														
57	-0.1	0.0	0.0	0.0	+0.1	+0.1	+0.1	+0.2	+0.2	+0.2	+0.3	+0.2	+0.2	+0.1
58	+0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	+0.1	+0.2	+0.2	+0.3	+0.3	+0.3
59	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	+0.1	+0.2	+0.3	+0.4	+0.4	+0.4	+0.4
60	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	+0.1	+0.1	+0.2	+0.2	+0.3	+0.2	+0.2
61														
62	-0.1	0.0	0.0	0.0	+0.1	+0.1	+0.1	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.1
63	+0.2	+0.2	+0.3	+0.2	+0.2	+0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0
64														
65														
66	-0.3	-0.2	-0.1	-0.1	-0.1	0.0	0.0	0.0	+0.1	+0.2	+0.3	+0.4	+0.4	+0.5
67	-0.4	-0.4	-0.3	-0.2	-0.2	-0.1	0.0	+0.1	+0.3	+0.3	+0.4	+0.5	+0.5	+0.5
68														
69														
70	-0.2	0.0	+0.1	+0.1	+0.2	+0.2	+0.2	+0.3	+0.3	+0.3	+0.2	+0.2	+0.2	+0.1

*(Greenwich Mean Civil Time of the Moon's Upper and Lower Transits, and the Equation of Time.)*

Day of month.	January.				February.				March.				April.				May.				June.			
	Transit.			Equation of time.	Transit.			Equation of time.	Transit.			Equation of time.	Transit.			Equation of time.	Transit.			Equation of time.	Transit.			Equation of time.
	Meridian of Greenwich.	Diff. for 1 hr. of longitude.	m.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.	m.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.	m.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.	m.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.	m.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.	m.	
1	h. m. 17 26	1.8	+ 3.4		h. m. 18 11	1.8	+ 13.7		h. m. 16 48	1.8	+ 12.6		h. m. 17 50	2.0	+ 4.1		h. m. 18 14	2.1	- 2.9		h. m. 19 28	2.1	- 2.5	
2	(5 47) 18 08	1.8	+ 3.9		(6 33) 18 55	1.8	+ 13.8		(5 11) 17 34	1.9	+ 12.4		(6 15) 18 40	2.1	+ 3.8		(6 39) 19 05	2.1	- 3.0		(7 53) 20 19	2.1	- 2.4	
3	(6 29) 18 50	1.8	+ 4.4		(7 18) 19 41	1.9	+ 14.0		(5 57) 18 20	1.9	+ 12.2		(7 06) 19 31	2.1	+ 3.5		(7 30) 19 55	2.1	8.2		(8 45) 21 12	2.2	- 2.2	
4	(7 12) 19 33	1.8	+ 4.8		(8 05) 20 29	2.0	+ 14.1		(6 44) 19 09	2.0	+ 12.0		(7 57) 20 23	2.2	+ 3.2		(8 21) 20 46	2.1	- 3.3		(9 40) 22 08	2.3	- 2.1	
5	(7 54) 20 16	1.8	+ 5.3		(8 54) 21 19	2.1	+ 14.1		(7 34) 19 59	2.1	+ 11.8		(8 49) 21 15	2.2	+ 3.0		(9 12) 21 39	2.2	- 3.4		(10 37) 23 06	2.4	- 1.9	
6	(8 39) 21 02	1.9	+ 5.7		(9 45) 22 11	2.2	+ 14.2		(8 25) 20 51	2.2	+ 11.6		(9 41) 22 08	2.2	+ 2.7		(10 05) 22 32	2.2	- 3.5		(11 37) 23 57	2.5	- 1.7	
7	(9 25) 21 49	2.0	+ 6.2		(10 38) 23 04	2.2	+ 14.3		(9 17) 21 44	2.2	+ 11.3		(10 34) 23 01	2.2	+ 2.4		(11 00) 23 28	2.3	- 3.5		0 08 (12 39)	2.6	- 1.6	
8	(10 14) 22 39	2.1	+ 6.6		(11 31) 23 58	2.2	+ 14.3		(10 10) 22 37	2.2	+ 11.1		(11 28) 23 55	2.2	+ 2.1		(11 57) 23 57	2.4	- 3.6		1 10 (13 41)	2.6	- 1.4	
9	(11 04) 23 30	2.1	+ 7.0		(12 24)	2.2	+ 14.4		(11 04) 23 30	2.2	+ 10.9		(12 22)	2.3	+ 1.8		0 26 (12 56)	2.5	- 3.7		2 11 (14 41)	2.5	- 1.2	
10	(11 56)	2.2	+ 7.4		0 50 (13 17)	2.2	+ 14.4		(11 57)	2.2	+ 10.6		0 50 (13 18)	2.3	+ 1.5		1 27 (13 57)	2.5	- 3.7		3 10 (15 38)	2.4	- 1.0	
11	0 22 (12 48)	2.2	+ 7.9		1 43 (14 09)	2.2	+ 14.4		0 23 (12 50)	2.2	+ 10.3		1 46 (14 15)	2.4	+ 1.2		2 28 (14 58)	2.6	- 3.8		4 06 (16 32)	2.2	- 0.8	
12	1 15 (13 41)	2.2	+ 8.2		2 35 (15 00)	2.2	+ 14.4		1 16 (13 43)	2.2	+ 10.1		2 45 (15 14)	2.4	+ 1.0		3 29 (15 58)	2.5	- 3.8		4 57 (17 21)	2.1	- 0.6	
13	2 07 (14 33)	2.2	+ 8.6		3 26 (15 52)	2.2	+ 14.4		2 10 (14 37)	2.2	+ 9.8		3 44 (16 13)	2.5	+ 0.7		4 27 (16 55)	2.4	- 3.8		5 45 (18 08)	1.9	- 0.4	
14	2 58 (15 24)	2.1	+ 9.0		4 18 (16 44)	2.2	+ 14.4		3 04 (15 32)	2.3	+ 9.5		4 42 (17 12)	2.4	+ 0.4		5 23 (17 49)	2.2	- 3.8		6 30 (18 52)	1.8	- 0.2	
15	3 49 (16 14)	2.1	+ 9.4		5 11 (17 38)	2.2	+ 14.3		3 59 (16 27)	2.3	+ 9.2		5 40 (18 08)	2.4	+ 0.2		6 14 (18 39)	2.1	- 3.8		7 13 (19 35)	1.8	0.0	
16	4 39 (17 04)	2.1	+ 9.7		6 05 (18 32)	2.3	+ 14.3		4 56 (17 24)	2.4	+ 9.0		6 36 (19 02)	2.2	- 0.1		7 03 (19 26)	2.0	- 3.8		7 56 (20 17)	1.8	+ 0.2	
17	5 30 (17 55)	2.1	+ 10.1		7 00 (19 29)	2.3	+ 4.2		5 53 (18 21)	2.4	+ 8.7		7 28 (19 53)	2.1	- 0.3		7 48 (20 10)	1.9	- 3.8		8 38 (21 00)	1.8	+ 0.5	
18	6 21 (18 47)	2.2	+ 10.4		7 57 (20 25)	2.4	+ 14.2		6 49 (19 17)	2.4	+ 8.4		8 18 (20 41)	2.0	- 0.5		8 32 (20 54)	1.8	- 3.8		9 21 (21 43)	1.8	- 0.7	
19	7 14 (19 41)	2.2	+ 10.7		8 54 (21 22)	2.4	+ 14.1		7 45 (20 12)	2.3	+ 8.1		9 04 (21 27)	1.9	- 0.8		9 15 (21 36)	1.8	- 3.8		10 06 (22 28)	1.9	+ 0.9	
20	8 09 (20 38)	2.3	+ 11.0		9 49 (22 17)	2.3	+ 14.0		8 39 (21 05)	2.2	+ 7.8		9 49 (22 11)	1.8	- 1.0		9 57 (22 18)	1.8	- 3.7		10 52 (23 15)	2.0	- 1.1	
21	9 06 (21 35)	2.4	+ 11.3		10 43 (23 10)	2.2	+ 13.9		9 30 (21 56)	2.1	+ 7.5		10 32 (22 54)	1.8	- 1.2		10 40 (23 01)	1.8	- 3.7		11 39 (23 57)	2.0	- 1.3	
22	10 04 (22 34)	2.4	+ 11.6		11 35	2.1	+ 13.7		10 19 (22 43)	2.0	+ 7.2		11 15 (23 36)	1.8	- 1.4		11 23 (23 46)	1.8	- 3.6		0 03 (0 03)	2.0	+ 1.5	
23	11 02 (23 31)	2.4	+ 11.9		(0 00) 12 24	2.0	+ 13.6		11 06 (23 28)	1.9	+ 6.9		11 58	1.8	- 1.6		12 08	1.9	- 3.5		0 53 (13 15)	2.1	+ 1.8	
24	11 59	2.3	+ 12.1		(0 48) 13 11	1.9	+ 13.5		11 51	1.8	+ 6.6		(0 19) 12 41	1.8	- 1.8		(0 31) 12 54	1.9	- 3.5		(1 43) 14 08	2.1	+ 2.0	
25	(0 27) 12 53	2.2	+ 12.4		(1 33) 13 55	1.9	+ 13.8		(0 13) 12 34	1.8	+ 6.3		(1 03) 13 25	1.8	- 2.0		(1 18) 13 42	2.0	- 3.4		(2 33) 14 57	2.1	+ 2.2	
26	(1 19) 13 44	2.1	+ 12.6		(2 17) 14 39	1.8	+ 13.2		(0 56) 13 17	1.8	+ 6.0		(1 48) 14 10	1.9	- 2.2		(2 06) 14 31	2.0	- 3.3		(3 22) 15 47	2.0	- 2.4	
27	(2 09) 14 33	2.0	+ 12.8		(3 00) 15 22	1.8	+ 13.0		(1 39) 14 00	1.8	+ 5.7		(2 34) 14 57	1.9	- 2.3		(2 56) 15 20	2.1	- 3.2		(4 11) 16 35	2.0	- 2.6	
28	(2 56) 15 18	1.9	+ 13.0		(3 43) 16 05	1.8	+ 12.8		(2 22) 14 44	1.8	+ 5.4		(3 21) 15 45	2.0	- 2.5		(3 45) 16 10	2.1	- 3.1		(5 00) 17 24	2.0	+ 2.8	
29	(3 40) 16 02	1.8	+ 13.2						(3 06) 15 28	1.9	+ 5.1		(4 10) 16 34	2.0	- 2.6		(4 35) 17 00	2.1	- 2.9		(5 48) 18 13	2.0	+ 3.1	
30	(4 24) 16 45	1.8	+ 13.4						(3 51) 16 14	1.9	+ 4.8		(4 59) 17 24	2.1	- 2.8		(5 24) 17 49	2.1	- 2.8		(6 38) 18 38	2.1	+ 3.2	
31	(5 06) 17 27	1.8	+ 13.5						(4 38) 17 01	2.0	+ 4.5						(6 14) 18 38	2.1	- 2.7					

The lower transits are inclosed in parentheses. In Table 6, 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:42 is 3:42 p. m. To adapt this table to the local time of another meridian, add the tabular hourly difference for each hour or 15° of west longitude, and subtract the same for east longitude. See explanation of tables, p. 28.

The equation of time is for Greenwich apparent noon, and is such that when applied according to sign to apparent time the result is mean time. For west longitudes, to change local to standard time add  $L - S$ .

TABLE 6.—MOON'S TRANSITS, AND EQUATION OF TIME, 1906.

*Greenwich Mean Civil Time of the Moon's Upper and Lower Transits, and the Equation of Time.*

Day of month.	July.			August.			September.			October.			November.			December.		
	Transit.		Equation of time.	Transit.		Equation of time.	Transit.		Equation of time.	Transit.		Equation of time.	Transit.		Equation of time.	Transit.		Equation of time.
	Meridian of Greenwich.	Diff. for 1 hr. of longitude.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.		Meridian of Greenwich.	Diff. for 1 hr. of longitude.	
	<i>h. m.</i>	<i>m.</i>		<i>h. m.</i>	<i>m.</i>		<i>h. m.</i>	<i>m.</i>		<i>h. m.</i>	<i>m.</i>		<i>h. m.</i>	<i>m.</i>		<i>h. m.</i>	<i>m.</i>	
1	(7 29) 19 56	2.2	+3.4	(9 06) 21 36	2.5	+6.2	(10 47) 23 14	2.2	+0.2	(11 09) 23 32	1.9	-10.1	(12 03) 00 03	1.8	-16.3	(12 16) 00 40	1.9	-11.1
2	(8 23) 20 51	2.3	+3.6	(10 06) 22 36	2.5	+6.1	(11 39) 22 04	2.1	-0.2	(11 55) 22 23	1.9	-10.4	0 25 (12 48)	1.8	-16.3	0 40 (13 04)	2.0	-10.7
3	(9 20) 21 49	2.4	+3.8	(11 06) 23 35	2.4	+6.0	0 04 (12 29)	2.0	-0.5	0 17 (12 39)	1.8	-10.7	1 10 (13 33)	1.9	-16.3	1 28 (13 52)	2.0	-10.4
4	(10 20) 22 50	2.5	+4.0	(12 04) 00 34	2.4	+6.0	0 52 (13 16)	2.0	-0.8	1 01 (13 23)	1.8	-11.0	1 56 (14 20)	1.9	-16.3	2 16 (14 40)	2.0	-10.0
5	(11 21) 23 52	2.6	+4.2	0 32 (12 58)	2.3	+5.9	1 38 (14 01)	1.9	-1.1	1 45 (14 07)	1.8	-11.3	2 43 (15 07)	2.0	-16.3	3 05 (15 29)	2.0	-9.6
6	(12 23) 00 53	2.5	+4.3	1 25 (13 50)	2.1	+5.8	2 23 (14 45)	1.8	-1.5	2 30 (14 52)	1.9	-11.6	3 31 (15 56)	2.0	-16.3	3 53 (16 17)	2.0	-9.2
7	0 53 (13 22)	2.5	+4.5	2 14 (14 38)	2.0	+5.7	3 07 (15 29)	1.8	-1.8	3 15 (15 38)	1.9	-11.9	4 20 (16 44)	2.0	-16.3	4 41 (17 04)	2.0	-8.7
8	1 51 (14 19)	2.4	+4.7	3 01 (15 24)	1.9	+5.6	3 51 (16 13)	1.8	-2.1	4 01 (16 25)	2.0	-12.2	5 08 (17 33)	2.0	-16.2	5 28 (17 52)	2.0	-8.3
9	2 46 (15 12)	2.2	+4.8	3 46 (16 08)	1.8	+5.4	4 35 (16 58)	1.9	-2.5	4 49 (17 13)	2.0	-12.5	5 57 (18 22)	2.0	-16.1	6 15 (18 39)	2.0	-7.9
10	3 36 (16 01)	2.0	+5.0	4 30 (16 52)	1.8	+5.3	5 21 (17 44)	1.9	-2.8	5 37 (18 02)	2.0	-12.8	6 46 (19 10)	2.0	-16.1	7 03 (19 27)	2.0	-7.4
11	4 24 (16 47)	1.9	+5.1	5 13 (17 35)	1.8	+5.1	6 08 (18 32)	2.0	-3.2	6 26 (18 51)	2.1	-13.0	7 34 (19 59)	2.0	-16.0	7 52 (20 17)	2.1	-7.0
12	5 09 (17 31)	1.8	+5.3	5 57 (18 19)	1.8	+5.0	6 56 (19 21)	2.0	-3.5	7 16 (19 41)	2.1	-13.3	8 23 (20 48)	2.1	-15.8	8 43 (21 10)	2.2	-6.5
13	5 52 (18 14)	1.8	+5.4	6 42 (19 05)	1.9	+4.8	7 46 (20 11)	2.1	-3.9	8 06 (20 31)	2.1	-13.5	9 14 (21 39)	2.1	-15.7	9 38 (22 06)	2.4	-6.0
14	6 35 (18 57)	1.8	+5.5	7 28 (19 52)	2.0	+4.6	8 36 (21 01)	2.1	-4.2	8 56 (21 21)	2.1	-13.8	10 06 (22 32)	2.2	-15.6	10 36 (23 06)	2.5	-5.5
15	7 18 (19 40)	1.8	+5.6	8 16 (20 40)	2.0	+4.5	9 27 (21 52)	2.1	-4.6	9 46 (22 11)	2.1	-14.0	11 00 (23 28)	2.3	-15.4	11 38 (23 56)	2.6	-5.1
16	8 02 (20 25)	1.8	+5.7	9 05 (21 30)	2.1	+4.3	10 18 (22 43)	2.1	-4.9	10 37 (23 03)	2.1	-14.2	11 58 (23 58)	2.5	-15.3	(0 09) 12 41	2.6	-4.6
17	8 47 (21 11)	1.9	+5.8	9 55 (22 21)	2.1	+4.1	11 08 (23 34)	2.1	-5.3	11 29 (23 55)	2.2	-14.4	(0 27) 12 58	2.5	-15.1	(1 13) 13 44	2.6	-4.1
18	9 34 (21 58)	2.0	+5.9	10 46 (23 12)	2.1	+3.9	11 59 (23 58)	2.1	-5.6	12 22 (00 02)	2.2	-14.6	(1 29) 14 00	2.6	-14.9	(2 16) 14 46	2.5	-3.6
19	10 23 (22 48)	2.0	+6.0	11 37 (23 52)	2.1	+3.7	(0 24) 12 50	2.1	-6.0	(0 50) 13 18	2.3	-14.8	(2 31) 15 02	2.6	-14.7	(3 15) 15 43	2.4	-3.1
20	11 13 (23 38)	2.1	+6.1	(0 02) 12 28	2.1	+3.4	(1 16) 13 41	2.2	-6.3	(1 46) 14 15	2.4	-15.0	(3 33) 16 02	2.5	-14.4	(4 10) 16 36	2.2	-2.6
21	(12 03) 00 28	2.1	+6.1	(0 53) 13 18	2.1	+3.2	(2 08) 14 34	2.2	-6.7	(2 45) 15 15	2.5	-15.2	(4 31) 16 59	2.4	-14.2	(5 01) 17 25	2.1	-2.1
22	(0 28) 12 54	2.1	+6.2	(1 42) 14 07	2.1	+3.0	(3 01) 15 29	2.3	-7.0	(3 45) 16 15	2.5	-15.3	(5 26) 17 53	2.2	-13.9	(5 48) 18 11	1.9	-1.6
23	(1 19) 13 44	2.1	+6.2	(2 32) 14 57	2.1	+2.7	(3 57) 16 25	2.3	-7.4	(4 44) 17 14	2.4	-15.5	(6 18) 18 42	2.1	-13.7	(6 34) 18 55	1.8	-1.1
24	(2 09) 14 33	2.1	+6.3	(3 22) 15 48	2.1	+2.4	(4 54) 17 23	2.4	-7.7	(5 42) 18 11	2.4	-15.6	(7 06) 19 29	2.0	-13.4	(7 17) 19 39	1.8	-0.6
25	(2 58) 15 22	2.0	+6.3	(4 14) 16 40	2.2	+2.2	(5 52) 18 21	2.4	-8.1	(6 38) 19 05	2.2	-15.8	(7 51) 20 13	1.9	-13.1	(8 00) 20 22	1.8	-0.1
26	(3 46) 16 11	2.0	+6.3	(5 07) 17 34	2.2	+1.9	(6 50) 19 18	2.4	-8.4	(7 30) 19 56	2.1	-15.9	(8 35) 20 57	1.8	-12.8	(8 44) 21 06	1.8	+0.4
27	(4 35) 17 00	2.1	+6.3	(6 02) 18 30	2.3	+1.6	(7 47) 20 14	2.3	-8.8	(8 20) 20 44	2.0	-16.0	(9 18) 21 40	1.8	-12.5	(9 28) 21 50	1.9	+0.9
28	(5 25) 17 50	2.1	+6.3	(6 59) 19 28	2.4	+1.4	(8 41) 21 08	2.2	-9.1	(9 07) 21 30	1.9	-16.1	(10 01) 22 23	1.8	-12.2	(10 13) 22 37	1.9	+1.4
29	(6 17) 18 43	2.2	+6.3	(7 57) 20 26	2.4	+1.1	(9 33) 21 58	2.1	-9.4	(9 52) 22 14	1.9	-16.1	(10 45) 23 08	1.8	-11.8	(11 00) 23 24	2.0	+1.9
30	(7 10) 19 38	2.3	+6.3	(8 55) 21 24	2.4	+0.8	(10 22) 22 46	2.0	-9.8	(10 36) 23 03	1.8	-16.2	(11 30) 23 53	1.9	-11.5	(11 48) (12 37)	2.0	+2.3
31	(8 07) 20 36	2.4	+6.2	(9 52) 22 20	2.3	+0.5				(11 19) 23 41	1.8	-16.3				0 13 (12 37)	2.0	+2.8

The lower transits are inclosed in parentheses. In Table 6, 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 16:42 is 3:42 p. m.

To adapt this table to the local time of another meridian, add the tabular hourly difference for each hour or 15° of west longitude, and subtract the same for east longitude.

The equation of time is for Greenwich apparent noon, and is such that when applied according to sign to apparent time the result is mean time. See explanation of tables, p. 28.



TABLE 7.—MOON'S PHASES, APOGEE AND PERIGEE, 1906.

*Greenwich Mean Civil Time of the Moon's Phases, Apogee and Perigee.*

Moon's Phases.												Moon in—									
● New Moon.				☾ First Quarter.				○ Full Moon.				☾ Last Quarter.				Apogee.			Perigee.		
mo.	d.	h.	m.	mo.	d.	h.	m.	mo.	d.	h.	m.	mo.	d.	h.	m.	mo.	d.	h.	mo.	d.	h.
. . . . .				Jan.	2	14	52	Jan.	10	16	37	Jan.	17	20	49	Jan.	4	16.0	Jan.	20	06.2
Jan. 24	17	09		Feb.	1	12	31	Feb.	9	07	46	Feb.	16	04	22	Feb.	1	13.1	Feb.	13	22.2
Feb. 23	07	57		Mar.	3	09	28	Mar.	10	20	17	Mar.	17	11	57	Mar.	1	09.7	Mar.	13	04.6
Mar. 24	23	52		Apr.	2	04	02	Apr.	9	06	12	Apr.	15	20	36	Mar.	29	03.0	Apr.	10	09.4
Apr. 23	16	06		May	1	19	07	May	8	14	10	May	15	07	03	Apr.	25	12.9	May	8	19.1
May 23	08	01		May	31	06	24	June	6	21	12	June	13	19	34	May	22	15.1	June	6	05.2
June 21	23	06		June	29	14	19	July	6	04	28	July	13	10	13	June	18	22.2	July	4	11.3
July 21	12	59		July	28	19	56	Aug.	4	13	00	Aug.	12	02	48	July	16	12.1	Aug.	1	06.8
Aug. 20	01	28		Aug.	27	00	42	Sept.	2	23	36	Sept.	10	20	54	Aug.	13	05.8	Aug.	27	09.5
Sept. 18	12	34		Sept.	25	06	12	Oct.	2	12	48	Oct.	10	15	39	Sept.	10	00.9	Sept.	22	00.3
Oct. 17	22	43		Oct.	24	13	50	Nov.	1	04	46	Nov.	9	09	45	Oct.	7	19.8	Oct.	19	17.8
Nov. 16	08	36		Nov.	23	00	39	Nov.	30	23	07	Dec.	9	01	45	Nov.	4	12.0	Nov.	17	01.8
Dec. 15	18	54		Dec.	22	15	04	Dec.	30	18	44	. . . . .				Dec.	1	18.4	Dec.	15	14.5
. . . . .				. . . . .				. . . . .				. . . . .				Dec.	28	18.6	. . . . .		

In the above table 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:42 is 3:42 p. m.

This table may be adapted to any other meridian than Greenwich by adding the longitude in time when it is east, and subtracting it when west.

TABLE 8.—MOON'S DECLINATION, 1906.

*Greenwich Mean Civil Time of the Moon's greatest Declination North and South and Passage over the Equator.*

Moon on Equator.			Moon Farthest North.			Moon on Equator.			Moon Farthest South.				
Time.			Time.			Declination.	Time.			Time.			Declination.
<i>mo.</i>	<i>d.</i>	<i>h. m.</i>	<i>mo.</i>	<i>d.</i>	<i>h. m.</i>	°   '   "	<i>mo.</i>	<i>d.</i>	<i>h. m.</i>	<i>mo.</i>	<i>d.</i>	<i>h. m.</i>	°   '   "
Jan.	2	09 48	Jan.	9	21 04	19 40	Jan.	16	14 22	Jan.	22	22 47	19 38
Jan.	29	19 02	Feb.	6	06 16	19 37	Feb.	12	20 33	Feb.	19	05 52	19 37
Feb.	26	03 30	Mar.	5	15 26	19 39	Mar.	12	04 41	Mar.	18	11 07	19 42
Mar.	25	10 43	Apr.	1	23 42	19 49	Apr.	8	15 00	Apr.	14	17 15	19 55
Apr.	21	17 06	Apr.	29	06 56	20 03	May	6	02 08	May	12	02 01	20 09
May	18	23 35	May	26	13 37	20 15	June	2	12 14	June	8	12 56	20 17
June	15	06 55	June	22	20 23	20 19	June	29	20 08	July	6	00 09	20 19
July	12	15 13	July	20	03 40	20 19	July	27	02 06	Aug.	2	09 44	20 18
Aug.	9	00 00	Aug.	16	11 32	20 18	Aug.	23	07 44	Aug.	29	16 45	20 20
Sept.	5	08 31	Sept.	12	19 45	20 23	Sept.	19	15 00	Sept.	25	22 02	20 28
Oct.	2	16 13	Oct.	10	03 52	20 36	Oct.	17	00 44	Oct.	23	03 57	20 43
Oct.	29	23 04	Nov.	6	11 30	20 51	Nov.	13	11 59	Nov.	19	12 36	20 56
Nov.	26	05 37	Dec.	3	18 37	21 02	Dec.	10	22 30	Dec.	16	23 59	21 03
Dec.	23	12 42	Dec.	31	01 29	21 05							

In the above table 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:42 is 3:42 p. m.

This table may be adapted to any other meridian than Greenwich by adding the longitude in time when it is east, and subtracting it when west.

TABLE 9.—CURRENTS.

These current tables are restricted to portions of the Atlantic and Pacific coasts of the United States and adjacent territory. The bearings and directions are true, that is, not magnetic, and all distances are in nautical miles. The matter in these tables is given in one of the five following forms:

1. Current diagrams are given for the seven following localities:

Georges Bank, from Nantucket Shoals to Cape Sable.

Boston Harbor, Massachusetts.

Nantucket and Vineyard sounds.

East River, New York.

New York entrance, by way of Sandy Hook.

Delaware Bay.

Chesapeake Bay.

These diagrams were made according to a plan devised jointly in 1894 by Lieut. E. H. Tillman, U. S. Navy, assistant, Coast and Geodetic Survey, and Capt. John Ross, nautical expert, of the same Survey. The diagram for Georges Bank contains both direction and velocity of the current for any time, but the other diagrams give merely the velocity, as the direction is assumed to be fixed by the banks or shoals along the course.

2. Tables in which the direction and velocity of the current are given for each hour of the tide at some reference station. These tables are distributed as follows:

7 stations in Portsmouth Harbor, referred to Portland, Maine.

17 stations in Boston Harbor, referred to Boston, Massachusetts.

3 stations off Chatham Lights, referred to Boston, Massachusetts.

2 stations in Long Island Sound, referred to New London, Connecticut.

4 stations in Arthur Kill, referred to Sandy Hook, New Jersey.

4 stations in Newark Bay, referred to New York, New York.

3 stations in Kill van Kull, referred to New York, New York.

The direction of the current is given on the upper line and the velocities, in knots, on the lower line for each station.

3. Some general remarks are given about the currents in the following localities:

Currents off Cape Cod Peninsula.

Currents in Block Island Sound.

Currents in Long Island Sound.

Currents in East River, New York.

Currents in Hudson River, New York.

4. The predicted time of the slack waters for every day in the year are given for the two following stations:

Seymour Narrows, British Columbia.

Sergius Narrows, Alaska.

5. Brief directions are given for obtaining slack waters at the 9 following stations in Georgia Strait, British Columbia:

Race Passage.

East Point.

Active Pass.

Portier Pass.

Dodd Narrows.

Burrard Inlet.

Yuculta Rapids.

Hole in the Wall.

Seechelt Rapids.

*Explanation of Current Diagram, Georges Bank.*

The diagram on the opposite page represents only average conditions of the currents at 14 stations along a curved line extending from the southern part of Nova Scotia to the Nantucket Shoals light vessel, the scale being too small to show details. The line may be defined as the arc of a circumference passing through Nantucket Shoals light vessel (lat.  $40^{\circ} 37' N.$ , long.  $69^{\circ} 37' W.$ ), with its center at Bath, Maine. The stations represented are approximately 20 miles apart, and No. 14 is at Nantucket Shoals light vessel.

The observations upon which the diagram is based are insufficient to give any but roughly approximate results, which it is hoped, however, will be near enough to the facts to be of service to the mariner.

On the diagram the currents flowing into the Gulf of Maine are designated as "flood" currents, and those flowing from it as "ebb" currents.

The direction and the velocity of the currents are indicated by the small figures within the diagram. The upper numbers represent the direction in degrees of azimuth reckoned from the south toward the west. In this system  $S=0^{\circ}$ ,  $W=90^{\circ}$ ,  $N=180^{\circ}$ , and  $E=270^{\circ}$ . The lower numbers represent the velocity in knots.

*Example 1.*—A vessel in latitude  $42^{\circ} 55' N.$  and longitude  $65^{\circ} 30' W.$  is about to enter the Gulf of Maine at 10 a. m. on a day when low water occurs at Boston at 7.40 a. m.: what is the direction and velocity of the current? On the diagram we find that station No. 2 is the one nearest to the location of the vessel. The time being  $10.00 - 7.40 = 2.20$ , or  $2\frac{1}{2}$  hours after low water, on the horizontal line representing station No. 2 find a point  $\frac{1}{2}$  the distance between the vertical lines indicating 2 hours and 3 hours after low water. The diagram shows that both the direction and the velocity of the current at this time are changing slowly, and consequently it will be sufficiently accurate to take the nearest numbers for the results. In this case, the direction of the current is indicated by an azimuth of  $116^{\circ}$ , which, being between  $90^{\circ}$  and  $180^{\circ}$ , is equivalent to N. ( $180^{\circ} - 116^{\circ}$ ) W., or N.  $64^{\circ}$  W., and the velocity is approximately 1.5 knots, the current being favorable to the vessel.

*Example 2.*—A vessel is in latitude  $40^{\circ} 40' N.$  and longitude  $68^{\circ} 55' W.$  at 2 p. m. on a day when high water occurs at Boston at 1 p. m.; what is the direction and velocity of the current? In this case No. 12 is the nearest station. By locating a point on the diagram, on the line of station 12, for 1 hour after high water, we find that both the azimuth and velocity are here shifting more rapidly than near the times of strength of flood or ebb, the direction changing from  $269^{\circ}$  to  $332^{\circ}$  in about an hour. A rough interpolation gives us  $290^{\circ}$ , which, being between  $270^{\circ}$  and  $360^{\circ}$ , is equivalent to S. ( $360^{\circ} - 290^{\circ}$ ) E., or S.  $70^{\circ}$  E., as the direction, and 0.5 knot as the velocity of the current at this time, but near the times of slack the directions and velocities are quite irregular.



TABLE 9.—CURRENTS.

HIGH WATER.							LOW WATER.						
Hours before.			Hours after.				Hours before.			Hours after.			
3	2	1	0	1	2	3	3	2	1	0	1	2	3
<i>Current stations in Portsmouth Harbor, referred to time of tide at Portland, Maine. See pp. 59-62.</i>													
Station (1) Outer entrance to harbor, 0.3 mile S. 77° W. from Whaleback Light.													
N 5° W	N 4° W	N 3° W	N 2° W	N 1° W	N	S 12° W	S 12° W	S 14° W	S 15° W	S 16° W	S 17° W	S 18° W	N 5° W
0.2	0.8	1.0	0.8	0.5	0.1	0.4	0.7	1.4	1.4	1.1	0.8	0.4	0.1
Station (2) In mid-channel 0.2 mile S. 78° E. from Portsmouth Harbor Light.													
N 28° W	N 20° W	N 12° W	N 6° W	N 2° W	N 7° W	S	S 2° E	S 11° E	S 18° E	S 17° E	S 7° W	S 3° W	N 32° W
0.3	0.8	1.1	1.1	0.8	0.1	0.5	0.7	1.3	1.4	1.1	0.7	0.1	0.2
Station (3) In mid-channel 0.3 mile N. 5° W. from Portsmouth Harbor Light.													
W	N 79° W	N 63° W	N 53° W	N 45° W	.	S 72° E	S 70° E	S 65° E	S 66° E	S 74° E	S 85° E	N 83° E	S 87° W
0.6	1.5	1.9	1.7	1.0	0.0	1.1	1.3	2.2	2.7	2.4	1.4	0.6	0.3
Station (4) About 0.4 mile N. 25° W. from Portsmouth Harbor Light.													
S 71° W	S 77° W	S 83° W	S 89° W	N 86° W	N 80° W	N 55° E	N 57° E	N 64° E	N 69° E	N 69° E	N 65° E	N 58° E	S 70° W
0.6	1.4	1.6	1.4	1.0	0.4	0.2	0.3	0.6	0.9	1.1	1.1	0.6	0.2
Station (5) In mid-channel south from Clark Island.													
S 88° W	S 86° W	S 84° W	S 83° W	S 81° W	S 79° W	N 81° E	N 82° E	N 84° E	N 84° E	N 83° E	N 79° E	N 73° E	S 89° W
1.0	1.7	1.7	1.4	1.0	0.4	0.7	1.1	2.4	2.3	1.7	1.0	0.4	0.6
Station (6) In mid-channel off Goat Island Ledge buoy.													
S 88° W	S 87° W	S 86° W	S 85° W	S 84° W	S 83° W	N 83° E	N 88° E	N 87° E	N 86° E	N 85° E	N 84° E	N 83° E	S 88° W
1.3	2.0	2.0	1.5	1.0	0.4	0.7	1.1	2.2	2.4	1.9	1.1	0.3	1.0
Station (7) About 0.2 mile south from Portsmouth Navy-Yard.													
N 43° W	N 45° W	N 48° W	N 55° W	N 52° W	N 55° W	S 55° E	S 54° E	S 49° E	S 45° E	S 43° E	S 44° E	S 45° E	N 42° W
1.8	2.9	3.1	2.9	2.0	0.9	0.5	0.9	1.9	2.8	2.6	1.8	0.6	1.5

TABLE 9.—CURRENTS.

HIGH WATER.							LOW WATER.						
Hours before.				Hours after.			Hours before.				Hours after.		
3	2	1	0	1	2	3	3	2	1	0	1	2	3
<i>Current stations in Boston Harbor, referred to time of tide at Boston, Mass. See pp. 63-66.</i>													
Station (1) South Channel, 1.2 miles N. 85° E. from Deer Island Light.													
S 75° W	S 76° W	S 76° W	S 77° W	N 59° E	N 61° E	N 63° E	N 63° E	N 64° E	N 64° E	N 65° E	S 70° W	S 75° W	S 75° W
1.5	1.3	0.9	0.1	0.8	1.5	1.8	1.8	1.8	1.4	0.1	0.9	1.4	1.5
Station (2) North Channel, 1.5 miles N. 68° E. from Deer Island Light.													
S 37° W	S 42° W	S 46° W	S 50° W	N 57° E	N 49° E	N 47° E	N 47° E	N 52° E	N 63° E	N 81° E	S 30° W	S 33° W	S 36° W
0.9	0.8	0.6	0.3	0.4	0.7	0.9	0.9	0.8	0.5	0.1	0.5	0.7	0.9
Station (3) Broad Sound, 1.0 mile N. 57° W. from Green Island.													
S 49° W	S 57° W	S 64° W	S 72° W	N 5° E	N 15° E	N 19° E	N 19° E	N 15° E	N 5° E	S 24° W	S 32° W	S 40° W	S 48° W
0.8	0.6	0.3	0.1	0.4	0.6	0.5	0.5	0.3	0.1	0.4	0.6	0.8	0.9
Station (4) Broad Sound, 0.8 mile S. 71° E. from Winthrop Head.													
S 26° W	S 33° W	S 42° W	N 8° E	N 22° E	N 31° E	N 49° E	N 41° E	N 48° E	N 58° E	S 43° W	S 29° W	S 20° W	S 22° W
0.7	0.4	0.1	0.1	0.3	0.4	0.5	0.5	0.4	0.2	0.1	0.4	0.6	0.7
Station (5) Broad Sound, 1.5 miles N. 60° E. from Winthrop Head.													
S 13° W	S 10° W	S 3° E	S 70° E	S 86° E	N 80° E	N 78° E	N 72° E	S 82° E	S 16° E	S 4° E	S 6° W	S 13° W	
0.4	0.4	0.3	0.0	0.2	0.3	0.4	0.4	0.2	0.1	0.1	0.2	0.3	0.4
Station (6) Broad Sound, near Lynn Harbor, 0.4 mile N. 86° W. from Bass Point.													
N 31° W	N 22° W	N 9° W	S 74° E	S 74° E	S 69° E	S 60° E	S 58° E	S 51° E	S 42° E	N 66° W	N 56° W	N 43° W	N 33° W
0.4	0.3	0.1	0.1	0.2	0.3	0.4	0.4	0.3	0.1	0.2	0.4	0.5	0.4
Station (7) Broad Sound, 0.5 mile S. 27° E. from East Point, Nahant.													
S 87° W	S 88° W	S 85° W	N 75° E	N 69° E	N 58° E	N 53° E	N 53° E	N 53° E	N 68° E	S 67° W	S 72° W	S 81° W	S 85° W
0.3	0.2	0.1	0.1	0.2	0.4	0.4	0.4	0.3	0.1	0.2	0.4	0.4	0.3
Station (8) Broad Sound, 1.2 miles N. 27° W. from The Graves.													
S 73° W	S 64° W	S 16° W	N 89° E	N 76° E	N 66° E	N 63° E	N 62° E	N 63° E	N 67° E	N 89° E	S 60° W	S 69° W	S 73° W
0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.1	0.2	0.3	0.4
Station (9) Broad Sound, 0.2 mile N. 15° E. from Green Island.													
S 85° W	S 77° W	S 65° W	S 76° E	S 88° E	N 81° E	N 69° E	N 65° E	N 50° E	N 33° E	N 89° W	N 88° W	W	S 86° W
0.7	0.6	0.2	0.2	0.5	0.8	0.8	0.7	0.5	0.1	0.1	0.4	0.6	0.7
Station (10) Hypocrite Channel, 0.6 mile N. from east end of Outer Brewster.													
S 39° W	S 42° W	S 45° W	N 60° E	N 59° E	N 59° E	N 60° E	N 60° E	N 62° E	N 65° E	S 60° W	S 55° W	S 43° W	S 39° W
1.1	0.8	0.4	0.1	0.6	1.0	1.1	1.1	0.8	0.3	0.1	0.6	1.0	1.1
Station (11) Hypocrite Channel, 0.6 mile N. 36° E. from east end of Outer Brewster.													
S 48° W	S 52° W	S 56° W	S 78° E	S 72° E	S 68° E	S 65° E	S 65° E	S 67° E	S 70° E	S 73° E	S 26° W	S 38° W	S 46° W
0.4	0.4	0.2	0.1	0.3	0.4	0.4	0.4	0.4	0.4	0.1	0.2	0.4	0.4

TABLE 9.—CURRENTS.

HIGH WATER.							LOW WATER.						
Hours before.				Hours after.			Hours before.				Hours after.		
3	2	1	0	1	2	3	3	2	1	0	1	2	3
<i>Current stations in Boston Harbor, referred to time of tide at Boston, Mass.—Continued.</i>													
Station (12) Hypocrite Channel, 0.2 mile W. from west end of Outer Brewster.													
S 67° W	S 82° W	N 83° W	N 80° E	N 26° E	N 9° W	N 18° W	N 20° W	N 21° W	. . .	N 76° W	S 72° W	S 61° W	S 63° W
0.5	0.3	0.1	0.2	0.3	0.3	0.3	0.3	0.1	0.0	0.3	0.4	0.5	0.5
Station (13) Hypocrite Channel, 0.1 mile N. 30° W. from Little Calf Island.													
S 78° W	S 82° W	S 80° W	N 52° E	N 58° E	N 61° E	N 60° E	N 59° E	N 52° E	N 41° E	S 66° W	S 70° W	S 73° W	S 77° W
0.9	0.7	0.4	0.4	1.0	1.2	1.1	1.0	0.7	0.3	0.1	0.7	0.9	0.9
Station (14) Hypocrite Channel, 0.2 mile W. from north end of Calf Island.													
S 32° W	S 28° W	S 24° W	N 38° E	N 29° E	N 26° E	N 28° E	N 29° E	N 36° E	N 40° E	S 57° W	S 48° W	S 40° W	S 33° W
0.9	0.8	0.5	0.1	0.5	0.6	0.6	0.6	0.5	0.3	0.2	0.7	0.9	0.9
Station (15) Midway between Calf and Great Brewster Islands.													
S 63° W	S 66° W	S 73° W	N 76° E	N 74° E	N 72° E	N 70° E	N 69° E	N 67° E	N 65° E	S 77° W	S 67° W	S 64° W	S 63° W
1.1	0.9	0.3	0.7	0.9	0.9	0.8	0.8	0.6	0.1	0.4	0.9	1.1	1.1
Station (16) East of Great Brewster Island, 0.5 mile N. 44° E. from Boston Light.													
S 66° W	S 70° W	S 73° W	N 37° E	N 60° E	E	S 73° E	S 69° E	S 58° E	. . .	S 53° W	S 57° W	S 61° W	S 65° W
0.6	0.5	0.2	0.1	0.4	0.4	0.3	0.3	0.1	0.0	0.2	0.4	0.5	0.6
Station (17) Black Rock Channel, 0.1 mile N. 25° W. from Narrows Light.													
S 33° W	S 30° W	S 29° W	N 44° E	N 49° E	N 53° E	N 58° E	N 59° E	N 62° E	N 64° E	S 85° W	S 45° W	S 39° W	S 34° W
1.3	1.0	0.3	0.1	0.6	0.8	0.9	0.9	0.8	0.5	0.1	0.6	1.1	1.3

TABLE 9.—CURRENTS.

HIGH WATER.							LOW WATER.						
Hours before.				Hours after.			Hours before.				Hours after.		
3	2	1	0	1	2	3	3	2	1	0	1	2	3
<i>Current stations off Chatham Lights, referred to time of tide at Boston, Mass. See pp. 63-66.</i>													
Station (1)							About 8.5 miles N. 87° E. from Chatham Lights.						
N 4° W	S 30° W	S 17° W	S 10° W	S 9° W	S 13° W	S 15° W	S 18° W	S 22° W	N 28° E	N 24° E	N 14° E	N 5° E	N 4° W
0.2	0.2	0.6	0.8	0.9	0.8	0.6	0.5	0.2	0.1	0.3	0.4	0.3	0.2
Station (2)							About 3.6 miles N. 87° E. from Chatham Lights.						
N 30° W	S 40° W	S 35° W	S 30° W	S 20° W	S 6° W	. . .	N 33° E	N 24° E	N 10° E	N	N 15° W	N 22° W	N 29° W
0.2	0.6	0.9	0.7	0.4	0.1	0.0	0.1	0.4	0.7	0.9	1.0	0.7	0.3
Station (3)							About 4.9 miles S. 54° E. from Chatham Lights.						
N 7° E	S 16° W	S 11° W	S 5° W	S 9° W	S 16° W	. . .	. . .	N 12° E	N 11° E	N 10° E	N 9° E	N 8° E	N 7° E
0.1	0.3	0.9	1.2	1.0	0.4	0.0	0.0	0.2	0.7	1.0	0.9	0.5	0.2

It will be seen that at the station (1), 8½ miles off Chatham Lights, the southward flow of current greatly exceeds the northward. This seems to be a characteristic of the offshore currents east of Cape Cod Peninsula, for the same phenomenon exists 5 miles east of Cape Cod Light and 7 miles east of Nauset Three Lights. The above table shows that off Chatham the dividing line between the inshore and the offshore currents lies somewhere between 4 and 8 miles from the shore.



*Explanation of Current Diagram, Boston Harbor.*

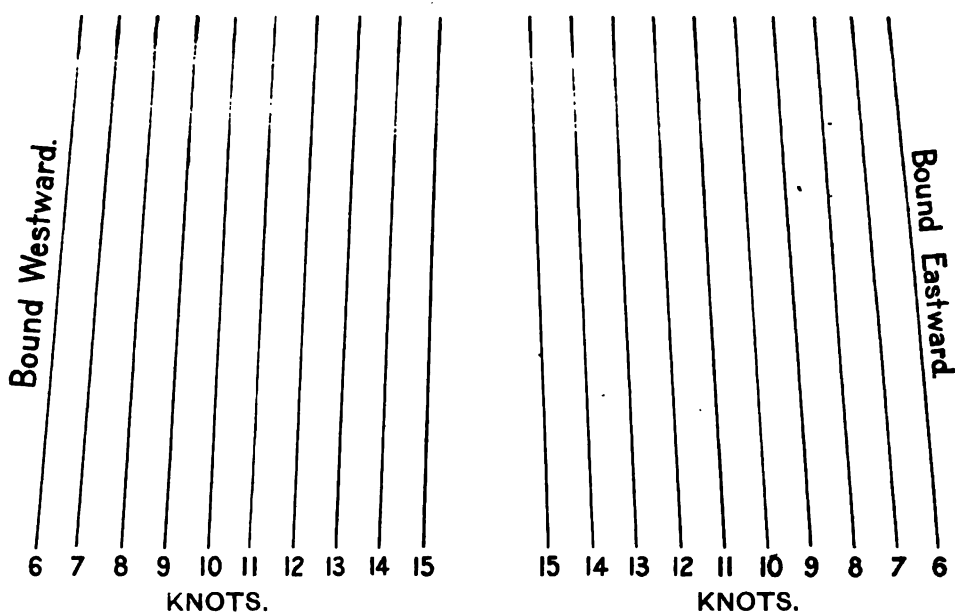
The diagram represents only average conditions of the surface currents along the middle of the channel from the Boston Light Ship to the Navy-Yard, the scale being too small to show details.

On the diagram westerly streams are designated as "Flood" currents and easterly streams as "Ebb" currents. The small figures on the surface of the diagram denote the velocity of the current in knots and tenths of knots.

The speed lines below represent the track of a vessel at certain speeds, supposing there is no current; hence the actual course on the diagram will become more nearly vertical with favorable and less vertical with unfavorable currents.

**SPEED LINES.**

Boston Harbor.



*Example.*—A vessel leaving the Navy-Yard desires to pass out of Boston Harbor on the morning of a day when low water at the Navy-Yard occurs at 1 h. 03 m. a. m. and high water at 7 h. 07 m. a. m. Her speed being 10 knots, at what time should she get under way so as to carry a favorable current all the way to Boston Light Ship, and what will be the state of the tide?

An inspection of the diagram on the opposite page shows that the most favorable time for leaving the Navy-Yard is about three hours after high water, which is given as occurring at 7 h. 07 m. a. m.; hence, if the vessel leaves the Navy-Yard about 10 a. m. on that day she will have a favorable current averaging about 1.6 knots and a falling tide all the way to the Light Ship.

A vessel entering the harbor and passing Boston Light Ship about three hours before high water at the Navy-Yard will have a favorable current averaging about 1.6 knots and a rising tide all the way to the Navy-Yard.

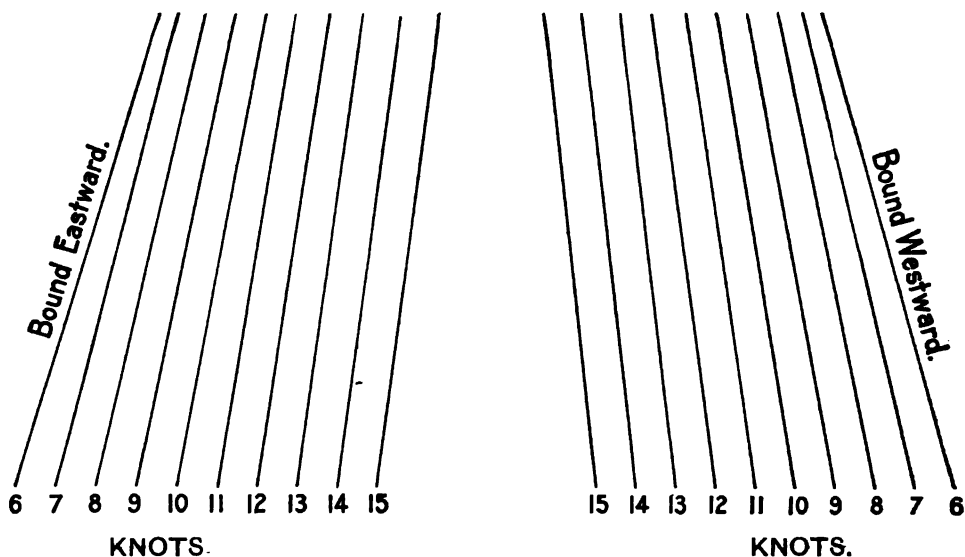


*Explanation of Current Diagram, Nantucket and Vineyard Sounds.*

The diagram represents only average conditions of the surface currents along the middle of the channel from Pollock Rip Slue to Gay Head Light, the scale being too small to show details.

On the diagram westerly streams are designated as “Flood” currents and easterly streams as “Ebb” currents. The small figures on the face of the diagram denote the velocity of the current in knots and tenths of knots.

The speed lines below represent the track of a vessel at certain speeds, supposing there is no current; hence the actual course on the diagram will become more nearly vertical with favorable and less vertical with contrary currents.

**SPEED LINES.****Nantucket and Vineyard Sounds.**

In the case of a vessel running about 12 knots, the most favorable time to enter the Sounds by way of Pollock Rip Slue is about the time of high water at Boston Navy-Yard, which may be found for a given date from the predictions given in these tables.

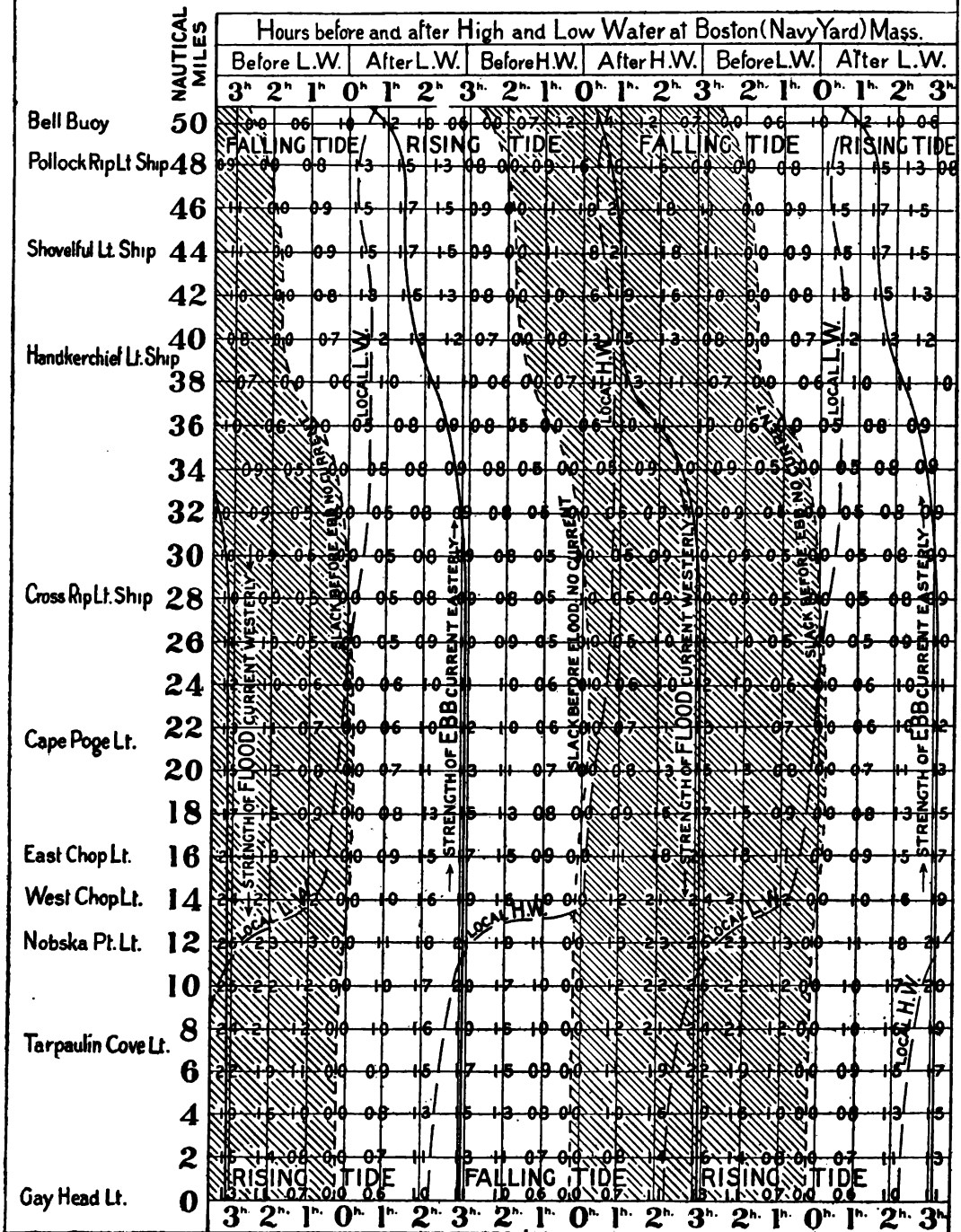
Inspection of the diagram on the opposite page shows that she will then carry a favorable current, averaging about 1.6 knots all the way to Gay Head. The tide will be falling to Nobska Point, and thence to Gay Head rising.

A vessel eastward bound through the Sounds can carry a favorable current only part of the way.

To obtain the most favorable conditions from Gay Head to Pollock Rip Slue, the diagram shows that the vessel should pass Gay Head about one hour after low water at Boston. She will then have a favorable current, averaging about 1.0 knot, to the Handkerchief Light-Ship, and a contrary current, averaging about 0.6 knot, the remainder of the distance. The tide will be rising all the way.

# CURRENT DIAGRAM

## NANTUCKET AND VINEYARD SOUNDS



*Block Island Sound.*—Between Point Judith and Block Island the strength of the flood or westerly current is about 1.8 knots, and the strength of the ebb or easterly current somewhat greater.

Between Block Island and Montauk Point the flood or northwesterly current is about 1.2 knots in the middle of the passage, and nearly 2 knots off Montauk Point, while the ebb or southeasterly current is nearly 2 knots across the passage.

About two miles north of Fort Pond Bay the current is about three-quarters of a knot in an easterly and westerly direction.

About a mile north of Cerberus Shoal Whistle the flood or westerly current is 1.4 knots, and the ebb current is 1.7 knots at its strength.

About two miles southeast from Watch Hill Point Light the strength of the flood is about 1.2 knots, and that of the ebb is about 1.0 knot.

The flood and ebb streams are about equal to one another half a mile to the northwest of Watch Hill Reef Spindle, and are 1.2 knots at their strength.

*Long Island Sound.*—All along the axis of the Sound from The Race to Eatons Point ebb begins about two hours twenty minutes after high water, and flood begins about three hours after low water at New London, Conn. Farther west these intervals gradually increase, but become very uncertain.

At the eastern end of the Sound the currents turn about an hour earlier along the shores than along a line midway between the shores.

HIGH WATER.							LOW WATER.						
Hours before.			Hours after.				Hours before.			Hours after.			
3	2	1	0	1	2	3	3	2	1	0	1	2	3
<i>Current stations in Long Island Sound, referred to time of tide at New London, Conn. See pp. 71-74.</i>													
Station (1) Long Island Sound, 4 miles S. from the mouth of the Connecticut River.													
N 73° W	S 85° W	S 65° W	S 60° W	S 75° W		N 55° E	N 51° E	N 46° E	N 48° E	N 63° E	N 60° E	N 67° E	N 75° W
0.4	1.0	1.5	1.6	1.2	0.0	1.1	1.6	2.1	2.4	2.4	1.6	0.5	0.2
Station (2) Long Island Sound, 8 miles S. from the Thimbles.													
W	S 85° W	S 78° W	S 70° W	S 62° W	S 54° W	N 50° E	N 51° E	N 53° E	N 55° E	N 57° E	N 59° E	N 61° E	N 88° W
0.1	0.7	1.2	1.5	1.0	0.2	0.1	0.4	0.9	1.2	1.0	0.7	0.8	0.1

In The Race the velocity at strength of ebb is 3.0 knots and of flood 2.5 knots. Going westward along the axis of the Sound these velocities gradually diminish until south of New Haven, where they are 1.1 and 1.0 knots, respectively. Going farther west they increase slightly until north of Eatons Point, where they are 1.3 and 1.4 knots, respectively. Still continuing westward, the velocities again diminish until between Rye Neck and Matinicock Point, where the ebb and the flood are not distinct and the velocity of either is 0.5 knot. Westward the velocities increase slightly, and off Pelham Bay are 0.9 knot for ebb and 0.7 knot for flood.

*East River, N. Y.*—The currents at different points along the East River are greatly modified by local conditions.

Off Old Ferry Point the slack before ebb lasts about twenty minutes and the slack before flood about eighteen minutes. The currents are quite irregular in this region.

Between Lawrence Point and Middle Ground slack water usually lasts less than ten minutes. The current flows directly along the channel.

Off Polhemus Dock slack water usually lasts from five to ten minutes. The currents follow the channel. Close to Polhemus Dock, within 200 feet, eddy currents are often found.

Between Wards Island and Ringgold's Dock slack water lasts twenty-five minutes.

Between Hallets Point and Hogs Back 8 knots have been measured on the flood; but elsewhere between Lawrence Point and Blackwells Island 3 and 4 knots at strength of ebb and flood are characteristic.

Between Hallets Point and Flood Rock the most rapid current on the ebb is very close to Flood Rock; the currents are direct and strong, with comparatively few eddies.

Off Hallets Point both ebb and flood set directly toward the Frying Pan Shoal. The flood current (setting to the eastward) sweeps close around Hallets Point and makes less eddy in the cove to the eastward than is found there on the ebb.

Between Great Mill Rock and Wards Island the flood current has numerous though not violent eddies. The slack water is of only a few minutes' duration. The main stream passes to the southward of Flood Rock.

There are strong eddies off Blackwells Island Light-House and off Hatter's Dock (the northern point of entrance to Hallets Cove).

In Blackwells Island Western Channel slack water usually lasts less than ten minutes. The currents follow the channel, and turn at nearly the same time throughout its length.

In Blackwells Island Eastern Channel slack water usually lasts less than five minutes. The current generally begins to follow the channel within thirty minutes of its slack. It has at no time any considerable velocity crosswise the channel. On the Blackwells Island side the current is about the same as in the channel, even to within a few feet of the sea wall. Both on the ebb and flood there is little current in the vicinity of the sea wall on the Long Island side. The currents turn at nearly the same time throughout the length of this channel.

Off East Twenty-third street slack water lasts from four to eight minutes. The strength of the ebb is nearly 3 knots.

HIGH WATER.							LOW WATER.						
Hours before.			Hours after.				Hours before.			Hours after.			
3	2	1	0	1	2	3	3	2	1	0	1	2	3
<i>Current stations in Arthur Kill, referred to time of tide at Sandy Hook, New Jersey. See pp. 83-86.</i>													
Station (1) Off Tottenville, Staten Island.													
N 45° E	N 45° E	N 45° E	N 45° E	S 45° W	S 45° W	S 45° W	S 45° W	S 45° W	S 45° W	S 45° W	N 45° E	N 45° E	N 45° E
0.9	1.0	1.1	0.9	0.4	0.7	1.2	1.2	1.1	0.9	0.5	0.3	0.5	0.7
Station (2) Off Rossville, Staten Island.													
N 45° E	N 45° E	N 45° E	N 45° E	. . .	S 45° W	S 45° W	S 45° W	S 45° W	S 45° W	S 45° W	N 45° E	N 45° E	N 45° E
0.5	0.5	0.4	0.2	0.0	0.2	0.5	0.5	0.5	0.4	0.1	0.2	0.4	0.5
Station (3) Off Island View, New Jersey.													
N 20° E	N 20° E	N 20° E	N 20° E	N 20° E	S 20° W	S 20° W	S 20° W	S 20° W	S 20° W	S 20° W	. . .	N 20° E	N 20° E
0.8	0.8	0.8	0.6	0.2	0.1	0.6	0.7	0.9	0.9	0.5	0.0	0.3	0.7
Station (4) About 0.4 mile N. 5° W. from Pralls Island.													
N 10° W	N 10° W	N 10° W	N 10° W	N 10° W	N 10° W	S 10° E	S 10° E	S 10° E	S 10° E	S 10° E	S 10° E	S 10° E	N 10° W
1.0	1.6	1.5	1.3	0.9	0.2	0.5	0.5	0.8	1.0	1.1	0.9	0.5	1.0

TABLE 9.—CURRENTS.

HIGH WATER.							LOW WATER.						
Hours before.			Hours after.				Hours before.			Hours after.			
3	2	1	0	1	2	3	3	2	1	0	1	2	3
<i>Current stations in Newark Bay, referred to time of tide at New York, N. Y. See pp. 79-82.</i>													
Station (1) Off the mouth of Elizabethport Creek, New Jersey.													
N 36° E	N 36° E	N 36° E	N 36° E	N 36° E	S 36° W	S 36° W	S 36° W	S 36° W	S 36° W	S 36° W	S 36° W	S 36° W	N 36° E
1.1	1.5	1.7	1.5	0.7	0.2	1.0	1.0	1.3	1.3	1.1	0.7	0.0	0.7
Station (2) About 0.2 mile W. from Corner Stake Light.													
N 85° E	N 85° E	N 85° E	N 85° E	N 85° E	S 85° W	S 85° W	S 85° W	S 85° W	S 85° W	S 85° W	S 85° W	N 85° E	N 85° E
1.1	1.2	1.2	0.8	0.4	0.2	0.8	0.8	1.0	0.9	0.7	0.3	0.4	1.0
Station (3) About 0.4 mile N. 28° E. from Corner Stake Light.													
N 10° W	N 10° W	N 10° W	N 10° W	N 10° W	S 10° E	S 10° E	S 10° E	S 10° E	S 10° E	S 10° E	S 10° E	S 10° E	N 10° W
0.5	0.7	0.7	0.4	0.1	0.1	0.4	0.4	0.6	0.6	0.4	0.2	0.0	0.2
Station (4) Off Newark, N. J., 0.1 mile below railroad bridge at outlet of Morris Canal.													
N 45° W	N 45° W	N 45° W	N 45° W	N 45° W	S 45° E	S 45° E	S 45° E	S 45° E	S 45° E	S 45° E	S 45° E	S 45° E	N 45° W
0.6	0.8	0.8	0.6	0.1	0.2	0.6	0.6	0.8	0.8	0.7	0.5	0.1	0.5
<i>Current stations in Kill van Kull, referred to time of tide at New York, N. Y. See pp. 79-82.</i>													
Station (1) About 0.1 mile S. from Bergen Point, New Jersey.													
N 75° W	N 75° W	N 75° W	N 75° W	N 75° W	S 75° E	S 75° E	S 75° E	S 75° E	S 75° E	S 75° E	S 75° E	N 75° W	N 75° W
1.8	1.7	1.1	0.6	0.0	0.7	1.5	1.5	2.0	1.7	1.0	0.2	0.8	1.7
Station (2) Off Port Richmond, Staten Island.													
S 80° W	S 80° W	S 80° W	S 80° W	N 80° E	N 80° E	N 80° E	N 80° E	N 80° E	N 80° E	N 80° E	N 80° E	S 80° W	S 80° W
1.8	1.8	1.5	0.8	0.3	1.6	2.1	2.1	2.2	1.6	0.9	0.0	1.2	1.7
Station (3) Off New Brighton, Staten Island.													
W	W	W	E	E	E	E	E	E	E	E	W	W	W
0.6	0.4	0.2	0.2	0.6	0.9	1.0	1.0	0.8	0.6	0.2	0.2	0.5	0.6

The currents in Arthur Kill and Kill van Kull generally follow the direction of the channel.

*Hudson River, N. Y.*—In the path of the Hudson, from the Narrows to the Tappan Sea, it is running flood 15 feet below the surface fully an hour before the turning from ebb to flood at the surface. Slack before ebb lasts from forty to fifty-five minutes. Slack before flood lasts about thirty-five minutes.

*The Narrows.*—Slack water lasts from fifteen to thirty minutes. Both the ebb and flood currents appear first on the east side.

*Near West Side of East Bank.*—There is usually a slack before the flood current lasting about ten minutes.

*Channels in New York Lower Bay.*—In the Fourteen Feet Channel both the ebb and flood currents set obliquely across the channel. In the East, Swash, Main, and Gedney channels slack water lasts about twenty-five minutes. The half-ebb currents in the Swash Channel set to the eastward strongly. In the Main and Swash channels the flood current starts in on their north side thirty minutes earlier than on the south side, and the ebb current starts out on the south side of the channel thirty minutes earlier than on the north side.



*Explanation of Current Diagram of East River, New York.*

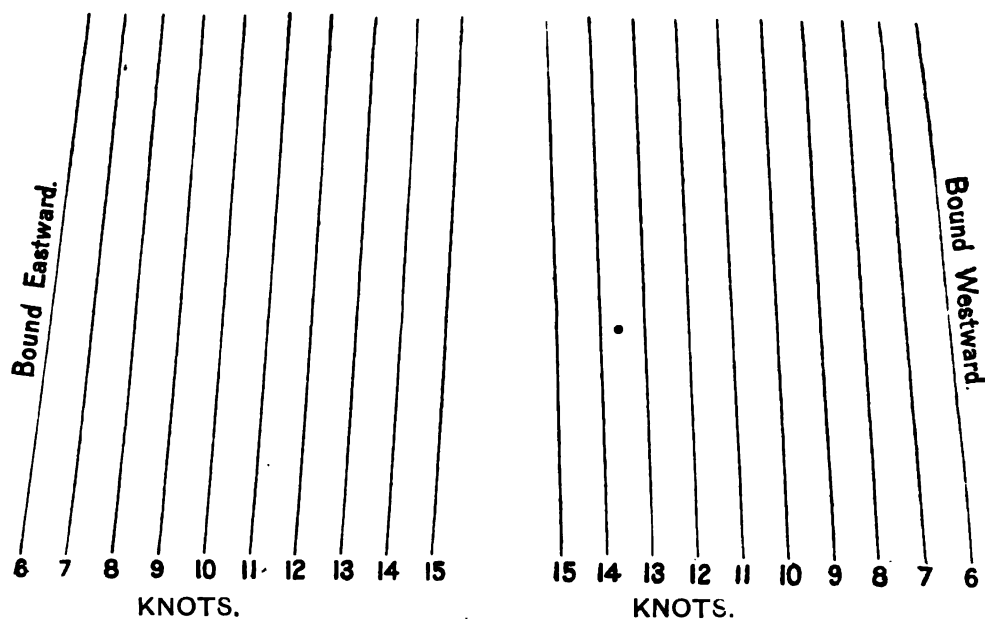
The diagram represents only average conditions of the surface currents along the middle of the channel between Governors Island and Execution Rocks, the scale being too small to show details. Between Halletts Point and Hogs Back a velocity of 8 knots has been observed, although the usual current is much less. Eddies, of more or less violence, occur in numerous localities in the East River, but as a general rule the currents follow the channels.

On the diagram east streams are designated as "Flood" currents and west streams as "Ebb" currents. The small figures on the surface of the diagram denote the velocity of the current in knots and tenths of knots.

The speed lines below represent the track of a vessel at certain speeds, supposing there is no current; hence the actual course on the diagram will become more nearly vertical with favorable, and less vertical with contrary currents.

**SPEED LINES.**

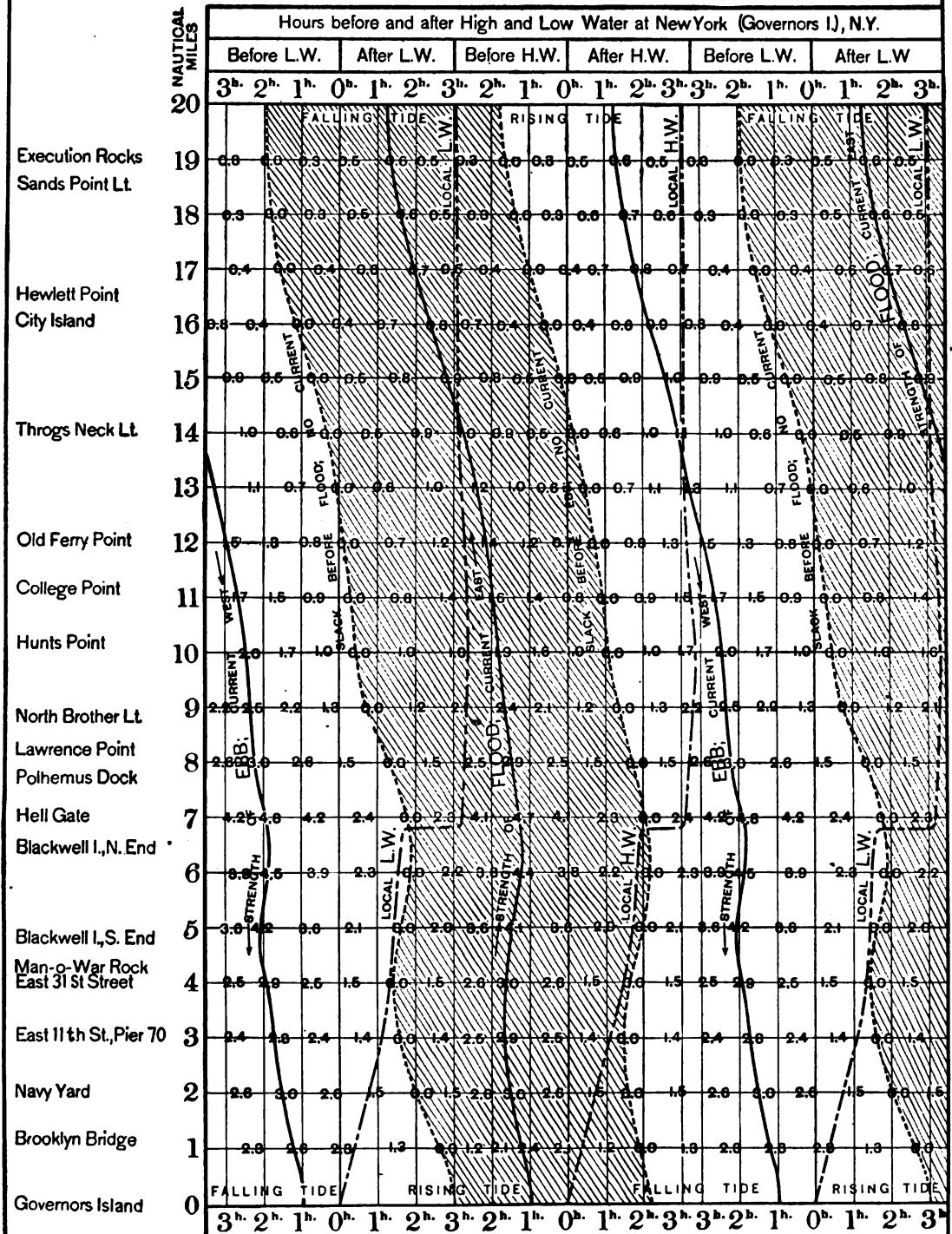
East River, New York.



*Example.*—A vessel at anchor in New York Harbor desires to pass through the East River in the afternoon of a day when high water at Governors Island occurs at 5h. 04m. p. m. and low water at 11h. 20m. p. m. Her speed being 12 knots, at what time should she get under way so as to carry a favorable current all the way, and what will be the state of the tide?

An inspection of the diagram on the opposite page shows that the most favorable time for going out from Governors Island is about three hours before high water, which is given as occurring at 5h. 04m. p. m.; hence, if the vessel is abreast of Governors Island at 2 p. m. on that day and runs at a speed of 12 knots, she will carry a favorable current averaging about 1.6 knots all the way. If she is abreast of Governors Island at 5 p. m., or the approximate time of high water, and runs at a speed of 12 knots, she will carry a favorable current through Hell Gate, but will meet a contrary current near College Point. In both cases the tide will be rising throughout the course to Execution Rocks.

# CURRENT DIAGRAM EAST RIVER — NEW YORK



*Explanation of Current Diagram of New York Entrance by way of Sandy Hook and Hudson River.*

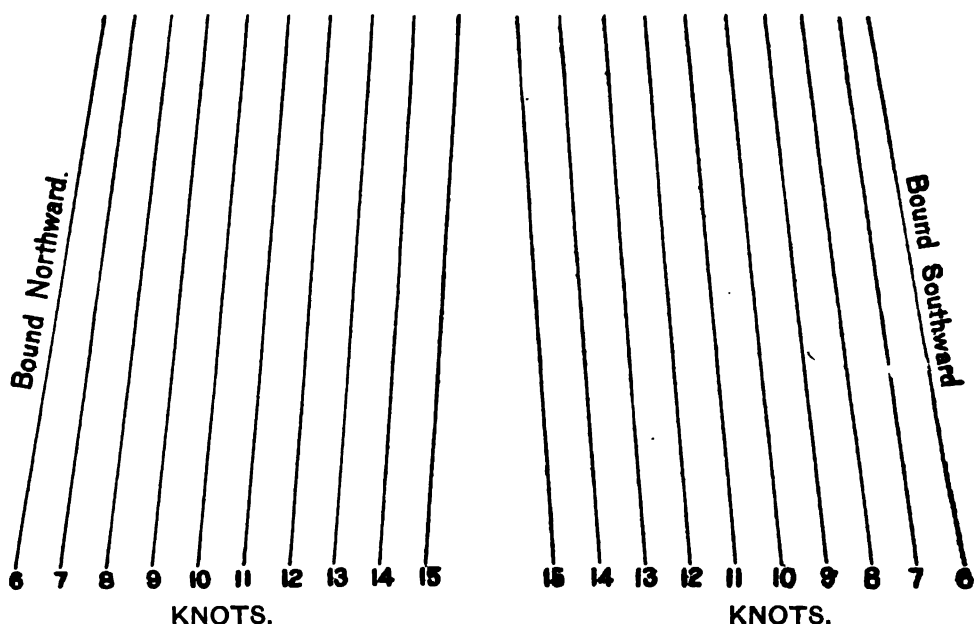
The diagram represents only average conditions of the surface currents along the middle of the channel between Scotland Light Ship and the Spuyten Duyvil, the scale being too small to show details. In the path of the Hudson, from The Narrows to the Tappan Sea, it is running flood 15 feet below the surface fully an hour before the turning from ebb to flood at the surface.

On the diagram flood streams are designated as "north" currents, and ebb streams as "south" currents. The small figures on the surface of the diagram denote the velocity of the current in knots and tenths of knots.

The speed lines below represent the track of a vessel at certain speeds, supposing there is no current; hence the actual course on the diagram will become more nearly vertical with favorable and less vertical with contrary currents.

### SPEED LINES.

#### New York Entrance by way of Sandy Hook.

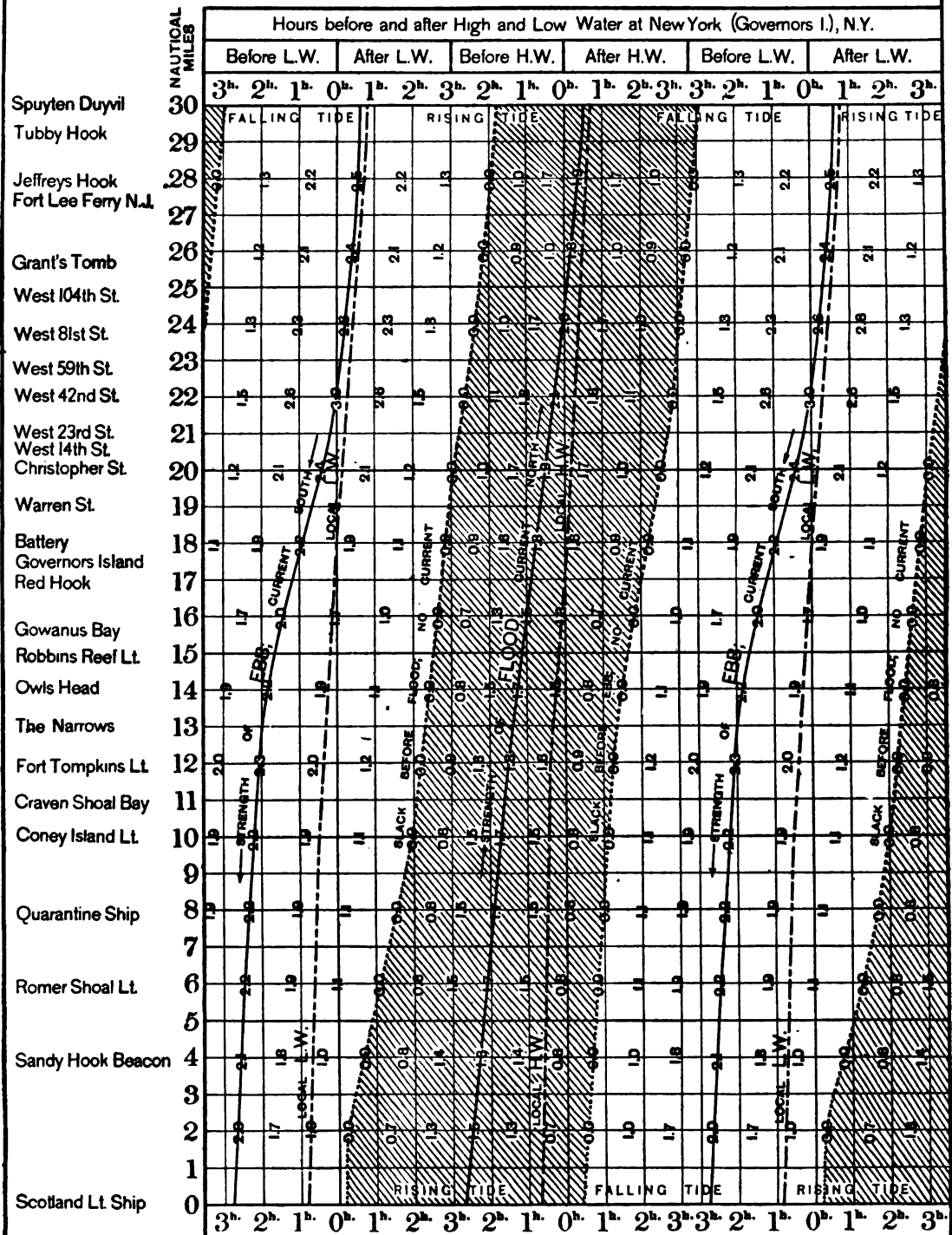


*Example.*—A vessel at anchor in New York Harbor desires to pass through The Narrows in the forenoon of a day when high water at Governors Island occurs at 1h. 20m. a. m., and low water at 7h. 55m. a. m. At what time should she get under way to carry a favorable current all the way to Scotland Light Ship, and what will be the state of the tide?

An inspection of the diagram on the opposite page shows that the most favorable time for going out from Governors Island is about three hours before low water, which is given as occurring at 7h. 55m. a. m.; hence, if the vessel is abreast of Governors Island at 5 a. m. on that day and runs at a speed of 10 knots, she will carry a favorable current averaging about 2 knots all the way. If she is abreast of Governors Island at 8 a. m., or the approximate time of low water, and runs at a speed of 10 knots, she will carry a favorable current through The Narrows, but will meet a contrary current near Romer Shoal Light. In the first case the tide will be falling throughout the course to Scotland Light Ship, which will be reached near the time of low water. In the other case the tide will be rising throughout the whole course.

## CURRENT DIAGRAM

## NEW YORK ENTRANCE BY WAY OF SANDY HOOK



*Explanation of current diagram, Delaware Bay.*

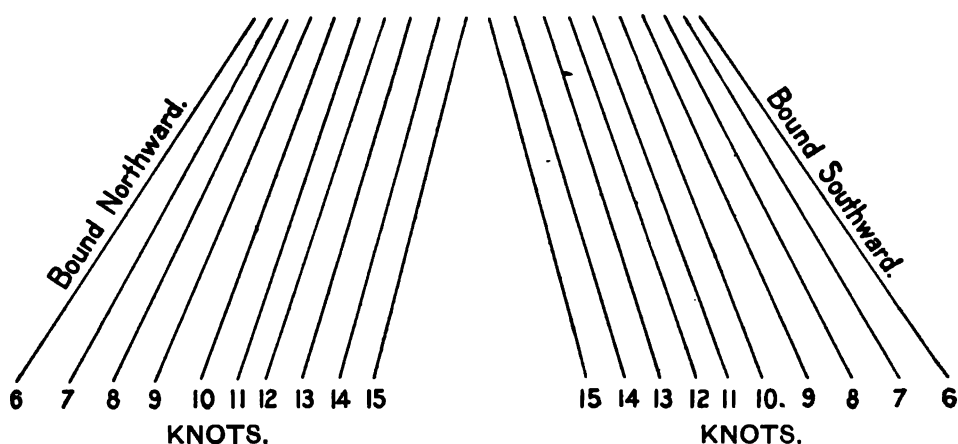
The diagram represents only average conditions of the surface currents along the middle of the channel between Bridesburg and Five Fathoms Bank Light, the scale being too small to show details.

On the diagram northerly streams are designated as "Flood" currents and southerly streams as "Ebb" currents. The small figures on the diagram denote the velocities of the current in knots and tenths of knots.

The speed lines below represent the track of a vessel at certain speeds, supposing there is no current; hence the actual course on the diagram will become more nearly vertical with favorable and less vertical with contrary currents.

**SPEED LINES.**

Delaware Bay.



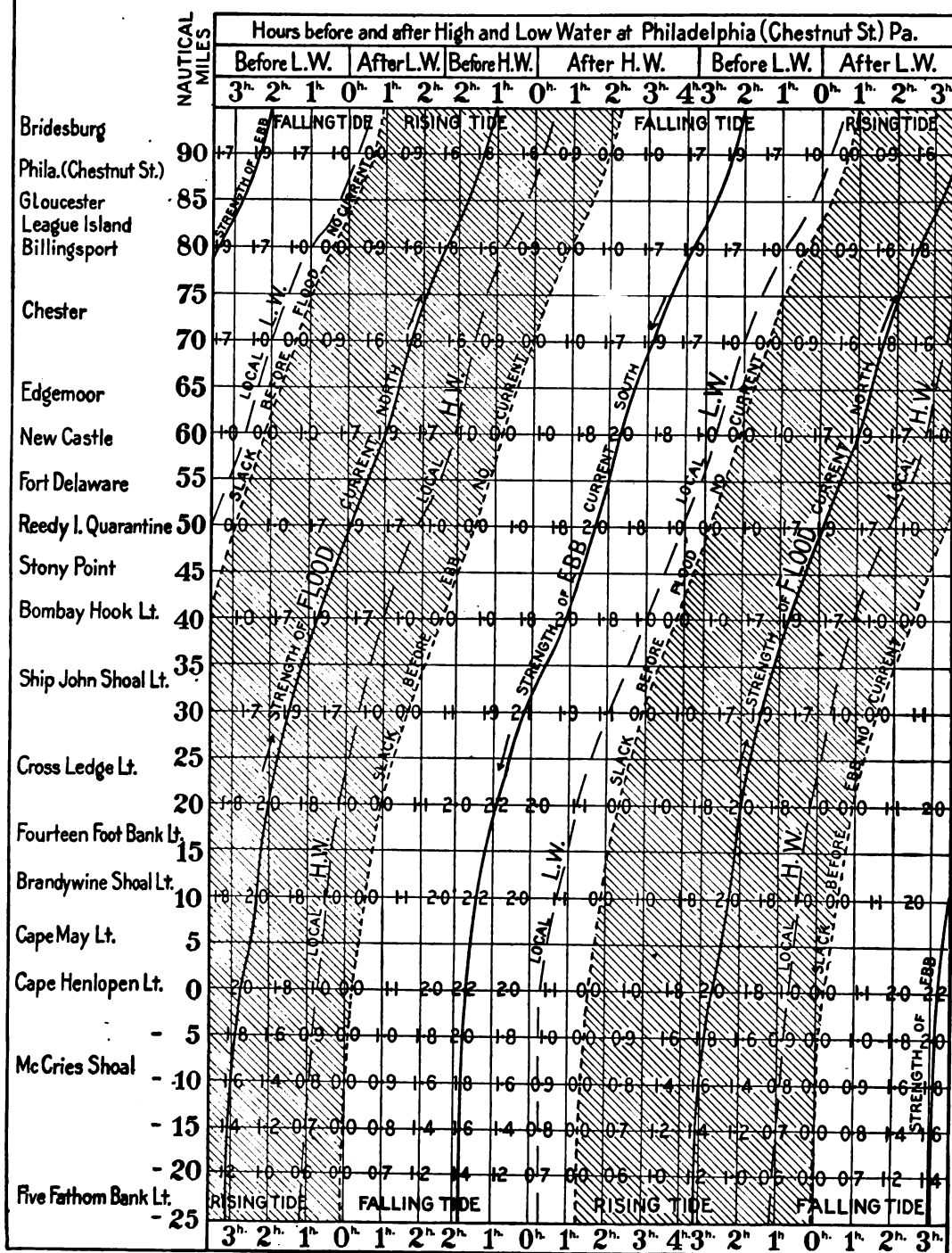
*Example.*—A vessel leaving Cape Henlopen on a day when high water at Philadelphia occurs at 1h. 11m. a. m., and low water at 8h. 18m. a. m., desires to carry a favorable current all the way to Philadelphia. Her speed being 12 knots, at what time should she get under way and what will be the state of the tide?

An inspection of the diagram on the opposite page shows that the most favorable time for leaving Cape Henlopen is about three hours before low water at Philadelphia, which is given as occurring at 8h. 18m. a. m., hence, if the vessel leaves Cape Henlopen about 5 a. m. on that day, and runs at a speed of 12 knots, she will carry a favorable current averaging about 1.9 knots, with a rising tide all the way.

A vessel leaving Philadelphia and running 12 knots can carry a favorable current only about one-half the way. The most favorable time to leave is about the time of low water at Philadelphia. She will then have an unfavorable current averaging about 1 knot as far as Stony Point and carry a favorable current averaging about 1.3 knots the remaining distance. As far as Fort Delaware the tide will be rising; from Fort Delaware to Cape Henlopen the tide will be falling.

# CURRENT DIAGRAM

## DELAWARE BAY

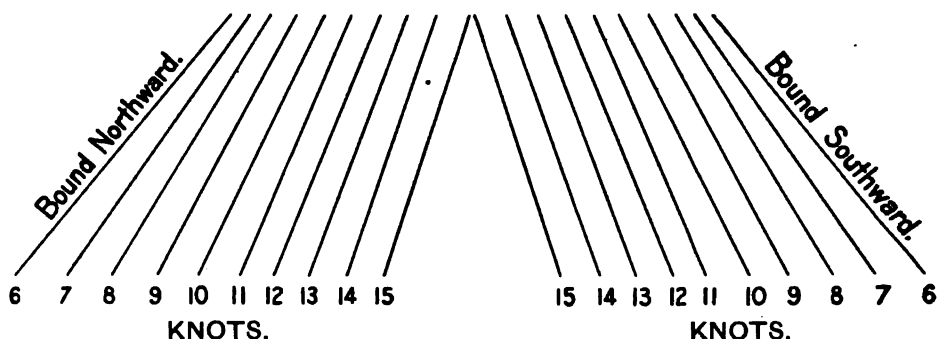


*Explanation of Current Diagram, Chesapeake Bay.*

The diagram represents only average conditions of the surface currents along the middle of the channel from Cape Henry Light to Baltimore, the scale being too small to show details.

On the diagram northerly streams are designated as "Flood" currents and southerly streams as "Ebb" currents. The small figures on the face of the diagram denote the velocity of the currents in knots and tenths of knots.

The speed lines below represent the track of a vessel at certain speeds, supposing there is no current; hence, the actual course on the diagram will become more nearly vertical with favorable and less vertical with contrary currents.

**SPEED LINES.****Chesapeake Bay.**

In the case of a vessel bound for Baltimore and running about 12 knots the most favorable time for passing Cape Henry is from two to three hours before high water at Old Point Comfort. Inspection of the diagram on the opposite page shows that she will then carry a favorable current averaging about 0.8 knot all the way to Baltimore. As far as James Point the tide will be rising, and from there to Baltimore it will be about local high water. To find the best time to leave Cape Henry on any given date subtract between two to three hours from the time of high water for that date as given in these tables.

A vessel leaving Baltimore and running at a speed of 12 knots can carry a favorable current at best only about two-thirds of the way to Cape Henry. Inspection of the diagram shows that the most favorable time to leave Baltimore is about two hours before high water at Old Point Comfort, or about high water at Baltimore. Leaving at this time a favorable current, averaging about 0.3 knot, will be carried to Cove Point; from Cove Point to Smith Point a contrary current, averaging about 0.4 knot, will be met, and from Smith Point to Cape Henry a favorable current, averaging about 0.8 knot, will be carried. The tide will be falling from Baltimore to Poplar Island and from Point Lookout to Wolf Trap Spit, and rising the remainder of the distance.





## SEYMOUR NARROWS (Discovery Passage), BRITISH COLUMBIA, 1906.

## TIMES OF SLACK WATER.

JANUARY.					FEBRUARY.					MARCH.				
Moon.	Day of—		Current turns from—		Moon.	Day of—		Current turns from—		Moon.	Day of—		Current turns from—	
	W.	Mo.				W.	Mo.				W.	Mo.		
			N to S.	S to N.	N to S.	S to N.							N to S.	S to N.
	M	1	3:40	10:10	16:50	23:10								
E	Tu	2	5:00	11:10	17:40									
D			S to N.	N to S.	S to N.	N to S.								
	W	3	0:10	6:30	12:10	18:40								
A	Th	4	1:40	8:00	13:00	19:30								
	F	5	2:45	9:00	13:50	20:15								
	S	6	3:30	9:50	14:30	20:50								
	S	7	4:05	10:30	15:10	21:30								
M	8	4:40	11:00	15:50	22:00									
N	Tu	9	5:05	11:30	16:20	22:40								
O	W	10	5:30	12:00	17:00	23:10								
	Th	11	5:55	12:35	17:40	23:50								
	F	12	6:25	13:10	18:30									
			N to S.	S to N.	N to S.	S to N.								
	S	13	0:35	7:05	13:40	19:20								
	S	14	1:20	7:50	14:10	20:20								
M	15	2:10	8:25	14:50	21:30									
E	Tu	16	3:20	9:10	15:40	22:30								
C	W	17	4:30	10:10	16:40	23:40								
	Th	18	5:55	11:15	17:30									
			S to N.	N to S.	S to N.	N to S.								
P	F	19	0:50	7:10	12:20	18:50								
	S	20	2:00	8:40	13:30	19:40								
	S	21	3:00	9:30	14:25	20:40								
S	M	22	3:45	10:20	15:20	21:30								
	Tu	23	4:30	11:00	16:10	22:20								
●	W	24	5:05	11:35	16:50	23:00								
	Th	25	5:40	12:10	17:40	23:50								
	F	26	6:20	12:40	18:20									
			N to S.	S to N.	N to S.	S to N.								
	S	27	0:30	7:00	13:20	19:20								
	S	28	1:30	7:40	14:00	20:20								
E	M	29	2:30	8:10	14:50	21:20								
	Tu	30	3:20	8:50	15:40	22:20								
	W	31	4:35	9:50	16:40	23:30								

This table gives the predicted 120th meridian times of Middle Slack Water; 0° is midnight, 12° is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:42 is 3:42 p. m. The heading "N to S" in the body of the table means that the current which had been setting toward the north before the time of slack water will begin to set southward shortly after that time; and "S to N" means exactly the reverse. Symbols and abbreviations relating to the moon: ●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator (not to be confounded with the compass directions over the times of slack); A, P, moon in apogee or perigee. The times in heavy faced type are those which are most likely to be followed by a comparatively weak current. At weakest neap tides the passage may be made at all stages of the current. The current at spring tides in Seymour Narrows attains an estimated velocity of 12 miles or more per hour; and when it is setting strong to the southward heavy and dangerous swirls and overfalls form along the south shore of Maude Island, and generally, though in a somewhat lessened degree, over the surface of the channel between Maude Island and Race Point. With a strong northerly

## SEYMOUR NARROWS (Discovery Passage), BRITISH COLUMBIA, 1906.

## TIMES OF SLACK WATER.

APRIL.				MAY.				JUNE.			
Moon.	Day of—		Current turns from—	Moon.	Day of—		Current turns from—	Moon.	Day of—		Current turns from—
	W.	Mo.			W.	Mo.			W.	Mo.	
N	S	1	N to S. S to N. N to S. S to N.	D	Tu	1	N to S. S to N. N to S. S to N.	E	F	1	S to N. N to S. S to N. N to S.
	M	2	5:00 9:20 15:50 22:20		W	2	5:30 10:20 16:50 23:50		S	2	0:10 6:50 13:00 19:00
			6:10 10:30 16:55 . . .				6:40 11:50 18:00 . . .		S	3	1:00 7:30 14:00 20:10
P	Tu	3	S to N. N to S. S to N. N to S.	Th	3	S to N. N to S. S to N. N to S.	P	O	M	4	1:50 8:10 15:00 21:20
	W	4	1:00 7:10 12:15 18:10		F	4	1:05 7:35 13:30 19:10		Tu	5	2:30 8:55 15:50 22:20
	Th	5	2:00 7:50 13:30 19:10		S	5	2:00 8:15 14:30 20:30		W	6	3:05 9:40 16:30 23:00
S	F	6	2:50 8:40 14:50 20:40	S	6	2:35 8:50 15:15 21:30	M	S	Th	7	3:50 10:25 17:25 23:50
	S	7	3:40 9:15 15:50 21:50		M	7	3:00 9:25 16:00 22:30				4:40 11:15 18:05 . . .
	S	8	4:15 9:50 16:30 22:50		Tu	8	3:40 10:05 16:45 23:10		F	8	N to S. S to N. N to S. S to N.
E	S	9	4:55 10:35 17:15 23:35	P	W	9	4:10 10:40 17:30 23:50	S	S	9	0:40 5:30 12:00 18:55
	M		5:30 11:15 18:00 . . .				4:50 11:30 18:10 . . .		S	10	1:30 6:20 12:45 19:35
			N to S. S to N. N to S. S to N.		Th	10	N to S. S to N. N to S. S to N.		S	11	2:20 7:25 13:40 20:20
P	Tu	10	0:20 6:00 11:55 18:30	S	F	11	0:40 5:40 12:15 19:05	C	M	12	3:15 8:50 14:40 21:20
	W	11	1:00 6:35 12:30 19:15		S	12	1:30 6:30 13:00 19:50		Tu	13	4:20 10:10 15:40 22:15
	Th	12	1:40 7:10 13:20 20:00	C	S	13	2:20 7:30 13:50 20:50		W	14	5:15 11:30 17:00 23:10
S	F	13	2:40 7:50 14:15 21:00		M	14	3:20 8:40 14:40 22:00	E	Th	15	6:10 12:40 18:40 . .
	S	14	3:40 8:45 15:15 22:20		Tu	15	4:30 10:05 15:50 23:20		F	16	S to N. N to S. S to N. N to S.
	S	15	4:55 10:10 16:25 23:50	A	W	16	5:40 11:50 17:20 . . .		S	17	0:10 7:10 13:50 20:00
C	M	16	6:10 11:40 17:35 . . .		Th	17	S to N. N to S. S to N. N to S.	A	S	18	1:10 7:50 14:50 21:15
			S to N. N to S. S to N. N to S.		F	18	0:40 6:50 13:10 19:00		S	19	2:05 8:35 15:30 22:00
	Tu	17	1:05 7:30 13:15 19:00	E	S	19	1:40 7:50 14:20 20:30		M	20	2:40 9:10 16:10 22:40
P	W	18	2:00 8:40 14:40 20:30		S	20	2:30 8:35 15:15 21:40	N	Tu	21	3:10 9:40 16:40 23:10
	Th	19	3:20 9:30 15:40 21:40		S	21	3:00 9:10 15:55 22:30		W	22	3:40 10:15 17:10 23:45
	F	20	3:55 10:05 16:20 22:50	A	S	22	3:30 9:50 16:35 23:15		Th	23	4:15 11:00 17:40 . . .
S	S	21	4:20 10:35 16:55 23:30		M	23	3:50 10:20 17:05 23:50	E	F	24	N to S. S to N. N to S. S to N.
	S	22	4:50 11:00 17:25 . . .		Tu	24	4:20 10:55 17:35 . . .		S	25	0:20 4:50 11:30 18:10
			N to S. S to N. N to S. S to N.	N	W	25	N to S. S to N. N to S. S to N.		S	26	0:55 5:30 12:00 18:45
E	M	23	0:00 5:10 11:20 17:55		Th	26	0:10 5:00 11:20 18:05	A	M	27	1:30 6:20 12:40 19:20
	Tu	24	0:35 5:35 11:50 18:30		F	27	0:40 5:25 11:50 18:40		Tu	28	2:00 7:00 13:10 19:50
	W	25	1:00 6:00 12:10 18:55	S	S	28	1:30 6:00 12:25 19:20		W	29	2:30 8:00 14:05 20:30
P	Th	26	1:30 6:30 12:40 19:30		S	29	1:55 6:30 12:50 19:50	N	Th	30	3:00 8:50 14:50 21:10
	F	27	2:00 6:55 13:10 20:05		M	30	2:25 7:15 13:30 20:25		F		3:35 10:00 16:10 22:00
	S	28	2:35 7:20 13:50 20:40	D	Tu		3:00 8:00 14:00 21:10		S	31	4:20 11:20 17:20 23:00
S	S	29	3:25 8:10 14:35 21:35		W		3:55 9:00 14:50 22:05	E			5:35 12:35 18:40 . . .
	M	30	4:15 9:00 15:35 22:40		Th	31	5:00 10:30 16:10 23:10				
							6:00 11:50 17:30 . . .				

set of the current, swirls and overfalls of greater magnitude and danger occur just to the northward of Ripple Rock. The water seems to boil and whirlpools are formed large enough to engulf a small vessel. Great trees with their roots and branches attached will be turned end over end and around and around. The currents in Seymour Narrows are quite irregular (see the results obtained by Lieut. Commander E. K. Moore, U. S. N., given on page 480), and mariners are advised, therefore, to be on hand a sufficient time before the tabulated times (say half an hour or more), in order to make sure of the desired slack water, in case the predictions happen to be too late. If bound to the northward a vessel should be on hand somewhat before the time given under "S to N" in the table, and if bound to the southward somewhat before the time given under "N to S" in the table. To those having good local knowledge it is usually possible to pass south for about an hour after the current begins to set southward; then avoiding the strength of the current, the last hour and a half of the south current may be used, that is, during the 1<sup>h</sup> 30<sup>m</sup> before the time given under "S to N." Strangers should never vary from the rule of passing either way at the slack-water period, taking care to select a time of slack water which will be followed by a favorable current.

## SEYMOUR NARROWS (Discovery Passage), BRITISH COLUMBIA, 1906.

## TIMES OF SLACK WATER.

JULY.				AUGUST.				SEPTEMBER.				
Moon.	Day of—		Current turns from—	Moon.	Day of—		Current turns from—	Moon.	Day of—		Current turns from—	
	W.	Mo.			W.	Mo.			W.	Mo.		
P S O	S	1	S to N. N to S. S to N. N to S.	S O E C	W	1	S to N. N to S. S to N. N to S.	O E A N P D	S	1	S to N. N to S. S to N. N to S.	
	M	2	0:05 6:40 13:45 19:50		Th	2	1:50 8:10 15:20 21:50		S	2	3:45 9:50 16:20 22:10	
	Tu	3	1:10 7:45 14:40 21:00		F	3	2:55 9:15 16:10 22:40		M	3	4:40 10:40 17:00 23:40	
	W	4	2:10 8:40 15:35 22:10		S	4	3:45 10:00 16:50 23:20		E A N P D	Tu	4	5:20 11:30 17:40 . . .
	Th	5	3:10 9:20 16:20 23:00		S	5	4:35 10:50 17:30 23:55			W	5	N to S. S to N. N to S. S to N.
	F	6	3:50 10:10 17:00 23:40		M	6	5:20 11:30 18:10 . . .			Th	6	0:00 6:00 12:15 18:20
E C A N P D	S	7	N to S. S to N. N to S. S to N.	E C A N P D	Tu	7	N to S. S to N. N to S. S to N.		W	7	0:30 6:40 13:00 19:50	
	S	8	0:30 6:20 12:40 19:20		W	8	0:30 6:00 12:20 18:45		Th	8	1:00 7:30 13:40 19:20	
	M	9	1:15 6:20 12:40 19:20		Th	9	1:05 6:50 13:10 19:20		F	9	1:40 8:20 14:20 20:00	
	Tu	10	1:50 7:30 13:25 20:00		F	10	1:40 7:55 14:10 20:00		S	10	2:30 9:15 15:30 20:55	
	W	11	2:30 8:30 14:20 20:50		S	11	2:30 9:00 15:10 20:40		M	11	3:30 10:05 16:25 21:50	
	Th	12	3:15 9:40 15:20 21:50		Th	12	3:15 10:00 16:20 21:30		Th	12	4:20 11:10 17:40 22:45	
E C A N P D	F	13	4:10 10:50 16:20 22:40	E C A N P D	S	13	4:15 11:10 17:20 22:30	N P D	W	13	5:10 12:30 19:10 23:40	
	S	14	5:10 12:00 18:00 23:40		M	13	5:20 12:30 18:40 23:40		Th	14	6:10 13:30 20:30 . . .	
	S	15	6:20 13:10 19:30 . . .		Tu	14	6:20 13:40 19:35 . . .		S	15	S to N. N to S. S to N. N to S.	
	M	16	S to N. N to S. S to N. N to S.		W	15	S to N. N to S. S to N. N to S.		Th	16	1:00 7:15 14:20 21:10	
	Tu	17	0:40 7:10 14:20 20:50		Th	16	0:30 7:10 14:30 20:45		F	17	1:50 8:00 15:00 21:40	
	W	18	1:30 7:55 15:10 21:35		F	17	1:40 7:50 15:20 21:30		S	18	2:40 8:50 15:30 22:10	
N P D	Th	19	2:20 8:40 15:55 22:10	N P D	S	18	2:30 8:40 15:50 22:10	E A N P D	M	19	3:30 9:30 16:00 22:55	
	W	20	2:50 9:15 16:30 22:50		S	19	3:10 9:20 16:20 22:40		Th	20	4:15 10:20 16:25 22:45	
	Th	21	3:35 9:45 17:00 23:20		S	20	3:45 10:00 16:50 23:10		W	21	5:00 11:00 17:00 23:05	
	F	22	4:10 10:30 17:20 23:50		M	21	4:20 10:40 17:20 23:30		Th	22	5:35 11:45 17:30 23:50	
	S	23	4:50 11:00 17:45 . . .		Tu	22	5:05 11:20 17:50 . . .		S	23	6:20 12:30 18:05 . . .	
	S	24	N to S. S to N. N to S. S to N.		W	23	N to S. S to N. N to S. S to N.		M	24	N to S. S to N. N to S. S to N.	
E D P S	M	25	N to S. S to N. N to S. S to N.	E D P S	Th	24	N to S. S to N. N to S. S to N.	P D S	W	25	N to S. S to N. N to S. S to N.	
	Tu	26	0:20 5:20 11:40 18:10		F	25	0:00 5:50 12:00 18:20		Th	26	0:00 6:00 12:15 18:20	
	W	27	0:20 5:20 11:40 18:10		S	26	0:30 6:40 12:40 18:50		S	27	0:35 8:00 14:15 19:30	
	Th	28	1:00 6:05 12:20 18:50		Th	27	1:00 7:30 13:25 19:20		M	28	1:20 9:00 15:10 20:30	
	Tu	29	1:25 6:50 13:00 19:30		F	28	1:30 8:20 14:20 20:05		Th	29	2:30 10:10 16:30 21:40	
	W	30	2:00 7:50 13:40 20:10		S	29	2:20 9:30 15:30 21:00		W	30	3:40 11:15 18:00 22:50	
E D P	Th	31	2:30 8:50 14:30 20:50	E D P	Th	30	3:20 10:35 16:50 21:50	S	Th	31	5:00 12:30 19:35 . . .	
	F	1	3:05 10:00 15:40 21:30		M	31	4:30 11:40 18:20 23:10		S	1	S to N. N to S. S to N. N to S.	
	S	2	4:00 11:10 17:05 22:30		Tu	1	5:40 12:50 20:50 . . .		Th	2	0:15 6:30 13:40 20:50	
P	S	3	5:00 12:15 18:30 23:45	P	W	2	S to N. N to S. S to N. N to S.	S	F	3	1:30 7:50 14:50 21:40	
	M	4	6:10 13:30 19:50 . . .		Th	3	0:20 6:55 14:00 21:00		S	4	2:45 9:05 15:35 22:15	
	Tu	5	S to N. N to S. S to N. N to S.		F	4	1:40 8:00 15:00 22:00		S	5	3:50 10:00 16:20 22:50	
P	W	6	0:50 7:15 14:30 21:00	P	S	5	2:50 9:00 15:50 22:40	S	Th	6		
	Th	7			W	6			F	7		
	F	8			Th	7			S	8		

This table gives the predicted 120th meridian times of Middle Slack Water; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:42 is 3:42 p. m. The heading "N to S" in the body of the table means that the current which had been setting toward the north before the time of slack water will begin to set southward shortly after that time; and "S to N" means exactly the reverse. Symbols and abbreviations relating to the moon: ●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator (not to be confounded with the compass directions over the times of slack); A, P, moon in apogee or perigee. The times in heavy-faced type are those which are most likely to be followed by a comparatively weak current. At weakest neap tides the passage may be made at all stages of the current. The current at spring tides in Seymour Narrows attains an estimated velocity of 12 miles or more per hour, and when it is setting strong to the southward heavy and dangerous swirls and overfalls form along the south shore of Maude Island, and generally, though in a somewhat lessened degree, over the surface of the channel between Maude Island and Race Point. With a strong northerly

## SEYMOUR NARROWS (Discovery Passage), BRITISH COLUMBIA, 1906.

## TIMES OF SLACK WATER.

OCTOBER.						NOVEMBER.						DECEMBER.						
Moon.	Day of W. Mo.	Current turns from—				Moon.	Day of W. Mo.	Current turns from—				Moon.	Day of W. Mo.	Current turns from—				
		S to N.	N to S.	S to N.	N to S.			S to N.	N to S.	S to N.	N to S.			S to N.	N to S.	S to N.	N to S.	S to N.
E	M 1	4:50	11:00	16:55	23:10	A	Th 1	5:45	12:20	17:30	23:40	A	S 1	5:55	12:35	17:20	23:50	
	Tu 2	5:30	11:50	17:25	23:40		F 2	6:20	12:50	17:50	...		S 2	6:35	13:10	17:50	...	
	W 3	6:05	12:30	18:00	...		N to S. S to N. N to S. S to N.				N 3		0:20	7:10	13:30	18:15		
	Th 4	0:10	6:40	13:05	18:25		S 3	0:10	6:50	13:20	18:20		M 3	0:20	7:10	13:30	18:15	
	F 5	0:35	7:20	13:40	18:50		S 4	0:30	7:25	13:50	18:50		Tu 4	0:40	7:40	14:15	19:00	
A	S 6	1:05	7:50	14:20	19:10	N	M 5	1:05	7:55	14:30	19:20	C	W 5	1:20	8:10	14:50	19:50	
	S 7	1:40	8:25	15:05	19:40		Tu 6	1:40	8:40	15:10	19:55		Th 6	2:00	8:50	15:35	21:00	
	M 8	2:10	9:10	16:00	20:20		W 7	2:20	9:20	16:00	20:50		F 7	2:45	9:40	16:35	22:05	
	Tu 9	2:50	10:00	17:00	21:00		Th 8	3:15	10:10	17:10	22:00		S 8	3:40	10:40	17:40	23:20	
	W 10	3:40	11:10	18:00	22:10		F 9	4:20	11:25	18:15	23:30		S 9	5:00	11:40	18:30	...	
C	Th 11	4:40	12:20	18:50	23:50	C	S 10	5:30	12:40	19:20	...	E	S to N. N to S. S to N. N to S.					
	F 12	5:50	13:50	19:40	...		S to N. N to S. S to N. N to S.						M 10	0:30	6:20	12:40	19:10	
	S 13	1:20	7:10	14:40	20:20		S 11	0:50	6:40	13:40	20:00		Tu 11	1:40	7:40	13:30	19:50	
	S 14	2:30	8:15	15:20	21:00		M 12	2:05	8:00	14:20	20:30		W 12	2:50	9:00	14:10	20:30	
	M 15	3:40	9:30	16:00	21:40		E Tu 13	2:55	9:00	14:55	21:10		Th 13	3:30	9:50	14:50	21:15	
E	Tu 16	4:15	10:30	16:40	22:15	P	W 14	3:40	10:00	15:25	21:45	P	F 14	4:10	10:50	15:30	22:00	
	W 17	5:00	11:20	17:10	22:55		Th 15	4:25	10:50	15:55	22:25		S 15	5:00	11:30	16:20	22:50	
	Th 18	5:35	12:00	17:40	23:30		F 16	5:10	11:35	16:30	23:05		S 16	5:40	12:20	17:10	23:40	
	F 19	6:15	12:40	18:20	...		S 17	5:50	12:20	17:15	23:50		M 17	6:30	13:10	18:10	...	
	S 20	0:15	6:55	13:30	19:00		S 18	6:40	13:05	18:10	...		N to S. S to N. N to S. S to N.					
S	S 21	1:00	7:40	14:20	19:30	D	N to S. S to N. N to S. S to N.					D	Tu 18	0:30	7:10	13:45	19:15	
	M 22	1:55	8:40	15:20	20:20		S M 19	0:40	7:35	14:00	19:00		W 19	1:20	8:05	14:40	20:30	
	Tu 23	2:40	9:40	16:20	21:30		Tu 20	1:30	8:30	15:00	20:05		Th 20	2:30	9:00	15:40	21:50	
	W 24	3:50	11:10	17:40	23:00		W 21	2:20	9:30	16:00	21:30		F 21	3:30	10:00	16:40	23:10	
	Th 25	5:00	12:30	18:50	...		Th 22	3:25	10:50	17:10	23:10		S 22	5:00	11:00	17:40	...	
D	F 26	0:40	6:20	13:50	20:10	E	F 23	4:50	12:15	18:35	...	E	S to N. N to S. S to N. N to S.					
	S 27	2:10	7:50	15:00	21:10		S 24	0:35	6:40	13:20	19:40		S 23	0:30	6:40	12:10	18:40	
	S 28	3:20	9:10	15:45	21:50		S 25	1:50	7:50	14:00	20:20		M 24	1:50	8:20	13:10	19:40	
	M 29	4:10	10:20	16:15	22:20		M 26	3:00	9:10	14:40	21:05		Tu 25	2:50	9:10	14:00	20:30	
	Tu 30	4:40	11:10	16:40	22:50		Tu 27	3:40	10:20	15:15	21:40		W 26	3:35	9:50	14:40	21:00	
C	W 31	5:10	11:45	17:05	23:15	O	W 28	4:20	11:00	15:45	22:15	A	Th 27	4:10	10:30	15:15	21:30	
							Th 29	5:00	11:30	16:10	22:40		F 28	4:40	11:00	15:50	22:00	
							F 30	5:25	12:00	16:40	23:10		S 29	5:10	11:30	16:20	22:40	
													S 30	5:30	12:00	16:50	23:10	
													M 31	5:50	12:30	17:30	23:45	

set of the current, swirls and overfalls of greater magnitude and danger occur just to the northward of Ripple Rock. The water seems to boil and whirlpools are formed large enough to engulf a small vessel. Great trees with their roots and branches attached will be turned end over end and around and around. The currents in Seymour Narrows are quite irregular (see the results obtained by Lieut. Commander E. K. Moore, U. S. N., given on page 480), and mariners are advised, therefore, to be on hand a sufficient time before the tabulated times (say half an hour or more), in order to make sure of the desired slack water in case the predictions happen to be too late. If bound to the northward a vessel should be on hand somewhat before the time given under "S to N" in the table, and if bound to the southward somewhat before the time given under "N to S" in the table. To those having good local knowledge it is usually possible to pass south for about an hour after the current begins to set southward; then avoiding the strength of the current, the last hour and a half of the south current may be used—that is, during the 1<sup>st</sup> 30<sup>th</sup> before the time given under "S to N." Strangers should never vary from the rule of passing either way at the slack-water period, taking care to select a time of slack water which will be followed by a favorable current.

## SERGIUS NARROWS (Peril Strait), ALASKA, 1906.

## TIMES OF SLACK WATER.

JANUARY.						FEBRUARY.						MARCH.					
Moon.	Day of—	Current turns from—				Moon.	Day of—	Current turns from—				Moon.	Day of—	Current turns from—			
	W. Mo.						W. Mo.						W. Mo.				
		N to S.	S to N.	N to S.	S to N.			N to S.	S to N.	N to S.	S to N.			N to S.	S to N.	N to S.	S to N.
E A	M 1	3:00	9:25	15:30	21:50	D A	Th 1	4:00	10:25	16:40	22:55	D A	Th 1	2:15	8:40	14:40	21:00
	Tu 2	3:55	10:25	16:40	22:55		F 2	5:10	11:20	17:40	...		F 2	3:00	9:30	15:40	22:00
	W 3	5:10	11:10	17:30	23:50		S 3	0:00	6:20	12:30	18:50		S 3	4:10	10:40	16:40	23:10
	Th 4	6:10	12:20	18:45	...		S 4	1:00	7:30	13:35	19:50		S 4	5:25	11:40	18:00	...
N C	F 5	0:50	7:20	13:20	19:40	N C	M 5	2:05	8:10	14:30	20:40	N C	M 5	0:10	6:40	12:50	19:15
	S 6	1:50	8:05	14:20	20:30		Tu 6	3:00	9:05	15:20	21:20		Tu 6	1:25	7:50	14:20	20:20
	S 7	2:40	8:50	15:00	21:10		W 7	3:40	9:45	15:55	22:10		W 7	2:35	8:50	14:55	21:05
	M 8	3:20	9:30	15:40	21:45		Th 8	4:15	10:20	16:40	22:40		Th 8	3:20	9:25	15:35	21:45
E C	Tu 9	4:00	10:05	16:10	22:20	E C	F 9	5:00	11:00	17:20	23:15	E C	F 9	4:00	10:00	16:10	22:20
	W 10	4:40	10:40	17:00	23:00		S 10	5:40	11:30	17:55	23:50		S 10	4:40	10:40	17:00	23:00
	Th 11	5:20	11:15	17:40	23:30		S 11	6:15	12:05	18:35	...		S 11	5:20	11:15	17:30	23:30
	F 12	5:55	11:50	18:10	...		N to S.	S to N.	N to S.	S to N.	P M 12		5:55	11:50	18:15	...	
N C	S 13	0:00	6:30	12:20	18:55	P C	M 12	0:25	7:00	12:45	19:20	P C	Tu 13	0:15	6:35	12:30	19:00
	S 14	0:45	7:15	13:00	19:40		Tu 13	1:10	7:40	13:30	20:10		W 14	0:50	7:20	13:10	19:50
	M 15	1:30	8:00	13:50	20:25		Th 15	3:00	9:30	15:40	22:10		Th 15	1:40	8:10	14:10	20:40
	Tu 16	2:20	8:55	14:50	21:20		F 16	4:15	10:50	17:00	23:25		F 16	2:40	9:20	15:20	21:50
E C	W 17	3:30	9:50	16:00	22:35	S C	S 17	5:40	12:05	18:30	...	S C	S 17	4:00	10:25	16:40	23:10
	Th 18	4:50	11:10	17:15	23:50		S 18	0:40	7:10	13:30	19:50		S 18	5:25	11:50	18:10	...
	P F 19	6:10	12:20	18:45	...		M 19	2:00	8:30	14:40	20:50		M 19	0:30	6:50	13:10	19:30
	S 20	1:00	7:35	13:40	19:55		Tu 20	3:00	9:05	15:20	21:25		Tu 20	1:50	8:00	14:20	20:30
S C	S 21	2:20	8:30	14:50	20:55	● C	W 21	3:40	9:50	16:00	22:10	● C	W 21	2:40	8:50	15:00	21:10
	M 22	3:10	9:15	15:30	21:40		Th 22	4:20	10:30	16:40	22:40		Th 22	3:30	9:35	15:40	21:50
	Tu 23	3:55	10:00	16:10	22:20		F 23	5:00	11:00	17:15	23:15		F 23	4:00	10:10	16:15	22:25
	W 24	4:40	10:40	17:00	23:00		S 24	5:35	11:30	17:50	23:45		S 24	4:35	10:40	16:50	22:55
E C	Th 25	5:20	11:15	17:40	23:40	E C	S 25	6:10	12:00	18:20	...	E C	S 25	5:10	11:10	17:20	23:30
	F 26	6:00	11:50	18:15	...		N to S.	S to N.	N to S.	S to N.	M 26		5:40	11:40	18:00	23:50	
	S 27	0:05	6:25	12:25	18:55		M 26	0:15	6:40	12:30	19:00		Tu 27	6:10	12:00	18:35	...
	S 28	0:45	7:15	13:05	19:30		Tu 27	0:50	7:20	13:10	19:40		A W 28	0:20	6:50	12:35	19:05
E	M 29	1:25	7:50	13:40	20:10	E	W 28	1:30	8:00	13:50	20:20	A	Th 29	1:00	7:20	13:15	19:40
	Tu 30	2:05	8:40	14:40	21:00		F 30	1:35	8:10	14:00	20:20		F 30	1:35	8:10	14:00	20:20
	W 31	3:00	9:30	15:30	21:50		S 31	2:20	8:50	14:50	21:30		S 31	2:20	8:50	14:50	21:30

This table gives the predicted 135th meridian times of Middle Slack Water; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:42 is 3:42 p. m. The heading "N to S" in the body of the table means that the current which had been setting toward the north before the time of slack water will begin to set southward shortly after that time; and "S to N" means exactly the reverse. Symbols and abbreviations relating to the moon: ●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator (not to be confounded with the compass directions over the times of slack); A. P. moon in apogee or perigee. Slack Water usually lasts from five to twenty minutes; those slacks which occur under the heading "N to S" are locally known as "High Water Slack," and those under "S to N" as "Low Water Slack," although high and low waters do not occur until about two hours later. The times in heavy-faced type are those which are most likely to be followed by a comparatively weak current. At weakest neap tides those with good local knowledge pass through Sergius Narrows at all stages of the current. The current at spring tides in Sergius Narrows attains an estimated velocity of 10 to 12 miles per hour in the narrowest and worst part of the Narrows, between Eureka Ledge and the north shore. When the current is running strong

## SERGIUS NARROWS (Peril Strait), ALASKA, 1906.

## TIMES OF SLACK WATER.

APRIL.					MAY.					JUNE.				
Moon.	Day of—		Current turns from—		Moon.	Day of—		Current turns from—		Moon.	Day of—		Current turns from—	
	W.	Mo.				W.	Mo.				W.	Mo.		
N D	S	1	N to S. S to N. N to S. S to N.	3:25 9:50 16:00 22:25	D E P S C A N	Tu	1	N to S. S to N. N to S. S to N.	4:00 10:25 16:40 23:00	E P S O S C E N	F	1	N to S. S to N. N to S. S to N.	5:50 12:05 18:30 . . .
	M	2	4:35 11:00 17:15 23:40	W		2	5:15 11:30 17:50 . . .				S to N. N to S. S to N. N to S.			
	Tu	3	6:00 12:10 18:30 . . .				S to N. N to S. S to N. N to S.		S		2	0:40 7:00 13:20 19:45		
			S to N. N to S. S to N. N to S.			Th	3	0:10 6:30 12:50 19:10	S		3	1:55 8:10 14:30 20:35		
	W	4	0:50 7:20 13:30 19:50	F		4	1:20 7:40 14:00 20:10	M	4		2:50 9:00 15:20 21:20			
	Th	5	2:00 8:15 14:30 20:40	S		5	2:30 8:35 14:50 21:00	P	Tu		5	3:35 9:40 15:55 22:00		
	F	6	2:50 9:00 15:15 21:20	S		6	3:15 9:20 15:30 21:40	O	W		6	4:20 10:20 16:40 22:40		
	S	7	3:40 9:40 15:50 22:00	M		7	3:50 10:00 16:10 22:20	Th	7		5:05 11:05 17:30 23:20			
	S	8	4:20 10:20 16:30 22:40	Tu		8	4:40 10:40 17:00 23:00	S	F		8	5:50 11:45 18:15 . . .		
	M	9	4:55 11:00 17:15 23:10	W		9	5:20 11:20 17:40 23:35				N to S. S to N. N to S. S to N.			
	Tu	10	5:40 11:30 18:00 23:50	Th		10	6:05 11:55 18:30 . . .	S	9		0:10 6:40 12:30 19:05			
P S C E N	W	11	6:20 12:10 18:40 . . .	S C M A N			N to S. S to N. N to S. S to N.		S	10	1:00 7:30 13:20 19:50			
			N to S. S to N. N to S. S to N.			F	11	0:20 6:50 12:40 19:15	M	11	1:45 8:20 14:10 20:40			
	Th	12	0:30 7:05 12:55 19:30		S	12	1:10 7:40 13:30 20:10	Tu	12	2:50 9:15 15:20 21:40				
	F	13	1:20 8:00 13:50 20:20		S	13	2:05 8:40 14:40 21:20	C	W	13	3:50 10:20 16:30 22:50			
	S	14	2:20 9:00 15:05 21:35		M	14	3:20 9:50 16:00 22:20	E	Th	14	5:00 11:25 17:40 . . .			
	S	15	3:40 10:15 16:30 22:50		Tu	15	4:30 11:00 17:10 23:30			S to N. N to S. S to N. N to S.				
	M	16	5:10 11:30 17:45 . . .		W	16	5:50 12:00 18:30 . . .	F	15	0:00 6:20 12:20 18:40				
			S to N. N to S. S to N. N to S.				S to N. N to S. S to N. N to S.	S	16	0:55 7:00 13:30 19:50				
	Tu	17	0:10 6:30 12:40 19:10		Th	17	0:40 7:00 13:10 19:30	S	17	1:50 8:10 14:20 20:30				
	W	18	1:20 7:45 13:50 20:05		F	18	1:45 8:00 14:15 20:20	A	M	18	2:40 8:50 15:00 21:00			
	Th	19	2:20 8:35 14:40 20:55		S	19	2:30 8:45 14:50 21:00	Tu	19	3:20 9:30 15:35 21:40				
E N	F	20	3:00 9:10 15:20 21:25	A N	S	20	3:10 9:20 15:30 21:40	N	W	20	3:50 10:00 16:10 22:20			
	S	21	3:40 9:45 15:50 22:00		M	21	3:45 9:50 16:00 22:10		Th	21	4:25 10:30 16:40 22:45			
	S	22	4:10 10:20 16:20 22:30		Tu	22	4:15 10:20 16:30 22:35		F	22	5:05 11:05 17:20 23:20			
	M	23	4:40 10:40 17:00 23:00		W	23	4:50 10:50 17:10 23:05		S	23	5:40 11:40 18:00 23:45			
	Tu	24	5:15 11:10 17:30 23:30		Th	24	5:20 11:20 17:40 23:30		S	24	6:15 12:10 18:40 . . .			
	W	25	5:45 11:40 18:00 23:50		F	25	6:00 11:50 18:15 . . .				N to S. S to N. N to S. S to N.			
	Th	26	6:20 12:10 18:40 . . .				N to S. S to N. N to S. S to N.		M	25	0:20 7:00 12:45 19:15			
			N to S. S to N. N to S. S to N.		N	S	26		0:00 6:30 12:25 18:50	Tu	26	1:10 7:40 13:30 20:00		
	F	27	0:30 6:55 12:45 19:10		S	27	0:45 7:10 13:00 19:30		W	27	1:50 8:20 14:20 20:50			
	S	28	1:10 7:35 13:20 20:00		M	28	1:20 8:00 13:50 20:20		Th	28	2:50 9:20 15:30 21:50			
	S	29	1:50 8:20 14:20 20:50		Tu	29	2:15 8:50 14:50 21:20		F	29	4:00 10:20 16:40 23:00			
	M	30	2:50 9:20 15:20 21:50		W	30	3:25 9:50 16:00 22:20		S	30	5:10 11:30 17:50 . . .			
					Th	31	4:30 11:00 17:10 23:30							

it is not safe for any vessel, especially a large one, to pass from below Francis Rocks to above Liesnoi Shoal. During spring tide it is recommended to pass through only at or near the time of middle slack. The water at the strength of the current is very much disturbed, heaving up over the ledge in the middle and boiling and swirling in the channel, especially at the end where the water is passing out. The channel is so narrow and the current so variable in direction that if a vessel gets a sheer she may be carried on the reef or shore before she can be straightened out. The currents in Sergius Narrows are quite irregular (see the results obtained by Lieut. Commander E. K. Moore, U. S. N., given on page 481), and mariners are advised, therefore, to be on hand a sufficient time before the tabulated times (say half an hour or more), in order to make sure of the desired slack water, in case the predictions happen to be too late. If bound to the northward, a vessel should be on hand somewhat before the time given under "S to N" in the table, and if bound to the southward, somewhat before the time given under "N to S" in the table. There is about half an hour on each side of middle slack when any ordinary powered vessel can pass in perfect safety, especially if going with the current. Strangers should never vary from the rule of passing either way at the slack-water period, taking care to select a time of slack water which will be followed by a favorable current.

TABLE 9.—CURRENTS.

## SERGIUS NARROWS (Peril Strait), ALASKA, 1906.

## TIMES OF SLACK WATER.

JULY.							AUGUST.							SEPTEMBER.						
Moon.	Day of—		Current turns from—				Moon.	Day of—		Current turns from—				Moon.	Day of—		Current turns from—			
	W.	Mo.						W.	Mo.						W.	Mo.				
			S to N.	N to S.	S to N.	N to S.				S to N.	N to S.	S to N.	N to S.				S to N.	N to S.	S to N.	N to S.
	S	1	0:10	6:30	12:40	19:05		W	1	2:20	8:30	14:50	20:55		S	1	3:45	9:50	16:00	22:10
	M	2	1:20	7:45	14:00	20:15	S	Th	2	3:10	9:20	15:30	21:40	○	S	2	4:25	10:30	16:40	22:40
	Tu	3	2:30	8:40	15:00	21:05		F	3	4:00	10:00	16:10	22:20		M	3	5:00	11:00	17:20	23:20
P	W	4	3:20	9:30	15:40	21:45	○	S	4	4:40	10:40	17:00	23:00	E	Tu	4	5:40	11:40	17:50	23:50
S	Th	5	4:05	10:10	16:30	22:30		S	5	5:25	11:20	17:40	23:40		W	5	6:10	12:00	18:30	
○	F	6	4:50	10:50	17:20	23:15		M	6	6:05	11:50	18:20				N to S.	S to N.	N to S.	S to N.	
	S	7	5:40	11:40	18:00	23:50				N to S.	S to N.	N to S.	S to N.		Th	6	0:20	6:50	12:40	19:00
	S	8	6:20	12:20	18:40			Tu	7	0:10	6:40	12:30	19:00		F	7	1:00	7:25	13:15	19:40
			N to S.	S to N.	N to S.	S to N.	E	W	8	0:50	7:20	13:10	19:40		S	8	1:30	8:10	14:00	20:20
	M	9	0:35	7:05	13:00	19:30		Th	9	1:30	8:00	13:50	20:20	A	S	9	2:20	8:50	14:50	21:15
	Tu	10	1:20	7:50	13:40	20:10		F	10	2:15	8:40	14:40	21:10	○	M	10	3:20	9:50	16:00	22:15
	W	11	2:05	8:40	14:40	21:00	○	S	11	3:20	9:30	15:40	22:10		Tu	11	4:30	10:50	17:05	23:20
E	Th	12	3:00	9:30	15:40	22:00	A	S	12	4:10	10:40	16:50	23:00	N	W	12	5:40	12:00	18:20	
○	F	13	4:00	10:40	16:50	23:00		M	13	5:20	11:40	18:00				S to N.	N to S.	S to N.	N to S.	
	S	14	5:10	11:30	17:40					S to N.	N to S.	S to N.	N to S.		Th	13	0:30	7:00	13:10	19:30
			S to N.	N to S.	S to N.	N to S.		Tu	14	0:20	6:40	12:40	19:00		F	14	1:45	8:00	14:15	20:30
	S	15	0:00	6:20	12:20	18:50		W	15	1:20	7:50	13:50	20:10		S	15	2:40	8:50	15:00	21:10
A	M	16	1:00	7:30	13:30	19:50	N	Th	16	2:20	8:30	14:45	20:50		S	16	3:25	9:35	15:40	21:50
	Tu	17	2:00	8:20	14:30	20:40		F	17	3:10	9:10	15:30	21:35		M	17	4:00	10:10	16:20	22:25
	W	18	2:50	9:00	15:10	21:10		S	18	3:45	9:50	16:00	22:10	●	Tu	18	4:40	10:40	17:00	23:00
N	Th	19	3:30	9:40	15:40	21:50	○	S	19	4:20	10:30	16:40	22:40	E	W	19	5:20	11:20	17:30	23:30
	F	20	4:05	10:10	16:20	22:30		M	20	5:00	11:00	17:20	23:20		Th	20	5:55	11:50	18:15	
●	S	21	4:40	10:45	17:00	23:00		Tu	21	5:40	11:35	18:00	23:50				N to S.	S to N.	N to S.	S to N.
	S	22	5:20	11:20	17:40	23:40	E	W	22	6:20	12:10	18:40		P	F	21	0:10	6:35	12:25	18:55
	M	23	6:00	11:50	18:15					N to S.	S to N.	N to S.	S to N.		S	22	0:50	7:20	13:10	19:40
			N to S.	S to N.	N to S.	S to N.		Th	23	0:20	6:55	12:45	19:15		S	23	1:30	8:10	14:00	20:40
	Tu	24	0:10	6:30	12:20	19:00		F	24	1:10	7:40	13:25	20:00	○	M	24	2:40	9:15	15:20	21:50
	W	25	0:50	7:15	13:05	19:40		S	25	1:50	8:30	14:25	21:00	S	Tu	25	3:55	10:30	16:40	23:10
E	Th	26	1:35	8:00	13:50	20:20	○	S	26	3:00	9:30	15:40	22:00		W	26	5:30	11:50	18:00	
	F	27	2:20	8:50	14:50	21:20	P	M	27	4:10	10:40	17:00	23:40				S to N.	N to S.	S to N.	N to S.
○	S	28	3:25	9:50	16:00	22:20		Tu	28	5:40	12:00	18:30			Th	27	0:30	7:00	13:10	19:30
	S	29	4:30	11:00	17:10	23:45				S to N.	N to S.	S to N.	N to S.		F	28	1:50	8:00	14:30	20:35
	M	30	6:10	12:20	18:40		S	W	29	0:40	7:00	13:30	19:50		S	29	2:40	8:50	15:10	21:15
			S to N.	N to S.	S to N.	N to S.		Th	30	2:00	8:20	14:40	20:40		S	30	3:30	9:35	15:45	21:55
P	Tu	31	1:00	7:20	13:30	19:50		F	31	3:00	9:10	15:20	21:30							

This table gives the predicted 15th meridian times of Middle Slack Water; 0<sup>h</sup> is midnight, 12<sup>h</sup> is noon; all hours less than 12 are in the forenoon (a. m.), all greater are in the afternoon (p. m.) and when diminished by 12 give the times after noon; for instance, 15:42 is 3:42 p. m. The heading "N to S" in the body of the table means that the current which had been setting toward the north before the time of slack water will begin to set southward shortly after that time; and "S to N" means exactly the reverse. Symbols and abbreviations relating to the moon: ●, new moon; ☾, 1st quar.; ○, full moon; ☾, 3d quar.; E, moon on the equator; N, S, moon farthest north or south of the equator (not to be confounded with the compass directions over the times of slack); A, P, moon in apogee or perigee. Slack water usually lasts from five to twenty minutes; those slacks which occur under the heading "N to S" are locally known as "High Water Slack," and those under "S to N" as "Low Water Slack," although high and low waters do not occur until about two hours later. The times in heavy-faced type are those which are most likely to be followed by a comparatively weak current. At weakest neap tides those with good local knowledge pass through Sergius Narrows at all stages of the current. The current at spring tides in Sergius Narrows attains an estimated velocity of 10 to 12 miles per hour in the narrowest and worst part of the Narrows, between Eureka Ledge and the north shore. When the current is running strong

## SERGIUS NARROWS (Peril Strait), ALASKA, 1906.

## TIMES OF SLACK WATER.

OCTOBER.				NOVEMBER.				DECEMBER.			
Moon.	Day of—	Current turns from—		Moon.	Day of—	Current turns from—		Moon.	Day of—	Current turns from—	
	W. Mo.				W. Mo.				W. Mo.		
O E	M 1	S to N.	N to S.	A N C	Th 1	S to N.	N to S.	A N C E	A S 1	S to N.	N to S.
	Tu 2	4:00	10:10		F 2	4:50	10:50		S 2	5:00	11:00
	W 3	4:40	10:40		S 3	5:20	11:20		N M 3	5:30	11:30
	Th 4	5:20	11:10			5:50	11:50			6:05	11:55
	F 5	5:45	11:40			18:10				18:25	
A N C	S 6	N to S.	S to N.	E P D	A S 4	N to S.	S to N.	E P D A N C	Tu 4	N to S.	S to N.
	S 7	0:25	6:55		M 5	0:00	6:25		W 5	0:15	6:40
	M 8	1:05	7:30		Tu 6	0:40	7:05		Th 6	0:50	7:20
	Tu 9	1:40	8:10		W 7	1:15	7:45		F 7	1:30	8:10
	W 10	1:50	8:20		Th 8	2:00	8:30		S 8	2:25	9:00
E P D	Th 11	2:10	8:25	E P D	F 9	2:00	8:30	E P D A N C	S 9	3:30	9:50
	F 12	2:10	8:25		S 10	3:00	9:30		M 10	4:40	11:00
	S 13	2:10	8:25			4:10	10:40		W 11	6:00	12:10
	M 14	2:10	8:25			5:30	11:45		Th 12	0:40	7:10
	Tu 15	2:10	8:25			18:00			W 13	1:50	8:00
E P D	W 16	S to N.	N to S.	E P D	S 11	S to N.	N to S.	E P D A N C	Th 14	3:35	9:40
	Th 17	0:00	6:30		M 12	S to N.	N to S.		F 15	4:20	10:25
	F 18	0:00	6:30		Tu 13	0:20	6:45		S 16	5:10	11:05
	S 19	0:00	6:30		W 14	1:25	7:50		M 17	5:55	11:50
	Tu 20	0:00	6:30		Th 15	2:30	8:40				
E P D	W 21	0:00	6:30	E P D	F 16	3:10	9:20	E P D A N C	Tu 18	0:10	6:40
	Th 22	0:00	6:30		S 17	3:50	10:00		W 19	1:00	7:30
	F 23	0:00	6:30		Th 18	4:40	10:40		Th 20	1:50	8:25
	S 24	0:00	6:30		W 19	5:20	11:20		F 21	2:50	9:20
	Tu 25	0:00	6:30		S 18	6:05	12:00		S 22	4:00	10:20
E P D	W 26	N to S.	S to N.	E P D		N to S.	S to N.	E P D A N C	M 17	5:55	11:50
	Th 27	0:30	7:00		S M 19	0:20	6:50		Tu 18	0:10	6:40
	F 28	1:20	8:00		Tu 20	1:10	7:50		W 19	1:00	7:30
	S 29	2:20	8:40		W 21	2:10	8:50		Th 20	1:50	8:25
	Tu 30	3:10	9:10		Th 22	3:20	9:50		F 21	2:50	9:20
E P D	W 31	4:10	10:20	E P D	F 23	4:40	11:10	E P D A N C	S 22	4:00	10:20
					S 24	6:00	12:10		M 24	0:00	6:20
									Tu 25	1:00	7:25
									W 26	2:00	8:05
									Th 27	2:40	8:55
E P D				E P D				E P D A N C	F 28	3:20	9:30
									S 29	4:00	10:00
									M 30	4:30	10:40
									W 31	5:10	11:10

It is not safe for any vessel, especially a large one, to pass from below Francis Rocks, to above Lieshol Shoal. During spring tide it is recommended to pass through only at or near the time of middle slack. The water at the strength of the current is very much disturbed, heaving up over the ledge in the middle and boiling and swirling in the channel, especially at the end where the water is passing out. The channel is so narrow and the current so variable in direction that if a vessel gets a sheer she may be carried on the reef or shore before she can be straightened out. The currents in Sergius Narrows are quite irregular (see the results obtained by Lieut. Commander E. K. Moore, U. S. N., given on page 481), and mariners are advised, therefore, to be on hand a sufficient time before the tabulated times (say half an hour or more), in order to make sure of the desired slack water, in case the predictions happen to be too late. If bound to the northward, a vessel should be on hand somewhat before the time given under "S to N" in the table, and if bound to the southward, somewhat before the time given under "N to S" in the table. There is about half an hour on each side of middle slack when any ordinary powered vessel can pass in perfect safety, especially if going with the current. Strangers should never vary from the rule of passing either way at the slack-water period, taking care to select a time of slack water which will be followed by a favorable current.



*Seymour Narrows and Sergius Narrows.*

In order to satisfy those who prefer using the old rules for obtaining the times of slack water, rather than the published predictions for Seymour Narrows and Sergius Narrows, the following rules are given here:

At Seymour Narrows, for high-water slacks add 4h 53m to Sitka time of high water, and for low-water slacks add 5h to Sitka time of low water. The result is in 120th meridian time without further correction. The mean duration of slack current is generally about 12m, but it varies from about 30m down to no slack.

At Sergius Narrows, for high-water slacks subtract 2h from Sitka time of high water, and for low-water slacks subtract 2h from Sitka time of low water. The mean duration of slack current is from 5m to 20m. At the end of high-water slack the current turns and flows southward through Sergius Narrows for about six hours, or until low-water slack, after which the current turns and flows northward for about six hours. The high and low tides occur nearly two hours after slack waters.

The following tables and remarks were compiled by Lieut. Commander E. K. Moore, U. S. N., Assistant, U. S. C. & G. S., from the current observations he obtained in 1897 at Seymour Narrows, British Columbia, and Sergius Narrows, Alaska.

*Seymour Narrows.*

	h. m.
Mean time of slack after higher H.W. Sitka. (58 Obs.)	4 45
Mean variation from 4h 45m	10
Extreme variation 24m earlier to 1h 00m later	1 24
Mean time of slack after lower H.W. Sitka. (145 Obs.)	4 50
Mean variation from 4h 50m	17
Extreme variation 35m earlier to 54m later	1 29
Mean time of slack after all high waters. Sitka. (203 Obs.)	4 48
Mean variation from 4h 48m	15
Extreme variation 33m earlier to 57m later	1 30
Mean time of slack after lower L.W. Sitka. (122 Obs.)	4 28
Mean variation from 4h 28m	14
Extreme variation 28m earlier to 1h 02m later	1 30
Mean time of slack after higher L.W. Sitka. (53 Obs.)	5 41
Mean variation from 5h 41m	35
Extreme variation 1h 15m earlier to 1h 27m later	2 42
Mean time of slack after all low waters. Sitka. (175 Obs.)	4 51
Mean variation from 4h 51m	36
Extreme variation 51m earlier to 2h 17m later	3 08
Mean time of slack after all H. and L. waters. Sitka. (378 Obs.)	4 50
Mean of the variation from 4h 50m	23
Extreme variation 50m earlier to 2h 19m later	3 08
Mean duration of slack water	13
Variation of duration of slack water	6m to 0 19

The time used at Seymour Narrows is 120th meridian, and that at Sitka 135th meridian, so that, to make use of the table, take the time of high or low water from the Sitka table, add the difference shown by this table, and the time will be that of slack water in 120th meridian, or Puget Sound time.

The mean time of slack after higher low water is large and the variation is also large, but this constant is unimportant, as it is calculated on the tide which has the least change in water level, consequently the weakest current, and except at the largest springs a steamer can pass at any time during this tide.

The interval is generally shorter at or about the spring tides and longer at or about the neaps. A vessel requiring slack water should be on hand at the limit of the variation, and wait if the current is running too strong.

*Sergius Narrows.*

	h. m.
Mean time of slack before higher H. W. Sitka. (87 Obs.).....	1 35
Mean of the variations from 1h 35m .....	19
Extreme variations 47m earlier to 47m later .....	1 34
Mean time of slack before lower H. W. Sitka. (120 Obs.).....	2 18
Mean of the variations from 2h 18m .....	14
Extreme variations 47m earlier to 55m later .....	1 42
Mean time of slack before all high waters. Sitka. (207 Obs.).....	2 00
Mean of the variations from 2h 00m .....	24
Extreme variations 1h 05m earlier to 1h 09m later .....	2 14
Mean time of slack before lower L. W. Sitka. (99 Obs.).....	2 00
Mean of the variations from 2h 00m .....	11
Extreme variations 21m earlier to 25m later .....	46
Mean time of slack before higher L. W. Sitka. (135 Obs.).....	1 27
Mean of variations from 1h 27m .....	11
Extreme variations 36m earlier to 40m later .....	1 16
Mean time of slack before all low waters. Sitka. (234 Obs.).....	1 41
Mean of the variations from 1h 41m .....	17
Extreme variations 40m earlier to 54m later .....	1 34
Mean time of slack before all H. and L. W. Sitka. (441 Obs.) .....	1 50
Mean of the variations from 1h 50m .....	24
Extreme variations 1h 15m earlier to 1h 03m later .....	2 18
Mean duration of slack water .....	03
Variation of the above is practically .....	00
Mean duration of weak current not exceeding 2 knots. (414 Obs.).....	50
Variation of the same .....	9m to 2 00

When the difference shown by this table is subtracted from the time of high or low water at Sitka, the time will be that of slack water at Sergius Narrows, in 135th meridian time.

All the larger variations of the above table occurred at or near neap tides, when the current was weak and the time of absolute slack was not important. At or about spring tides the variation seldom exceeded 10 minutes.

*Georgia Strait, British Columbia.*

To find the approximate 120th meridian time of *slack water*:

(1) At Race Passage, for the large tides, take Port Townsend time of high tide for higher high water slack, and add 55 minutes to the times of low tide for lower low water slack. For small tides add 1 hour 20 minutes to Port Townsend times of tide for lower high and higher low water slacks.

NOTE.—At Race Passage it has been observed that the ebb stream has frequently run, during small tides, the whole time the tide was rising by the shore.

(2) At East Point, take the Port Townsend time of high tide for higher high water slack, and add 1 hour 30 minutes to the time of low tide for lower low water slack.

(3) At Active Pass, take the Port Townsend time of high tide for higher high water slack, and add 1 hour to the time of low tide for lower low water slack.

(4) At Portier Pass, subtract 15 minutes from the Port Townsend time of high tide for higher high water slack, and add 30 minutes to the time of low tide for lower low water slack.

(5) At Dodd Narrows, for the large tides, subtract 40 minutes from Port Townsend time of tide for higher high and lower low water slacks. For small tides take Port Townsend time of tide for high or low water slack.

(6) At Burrard Inlet, First Narrows, add 2 hours and 30 minutes to the large tides and 2 hours to the small tides at Port Townsend.

(7) At Yuculta Rapids, Stuart Island, for large tides take Port Townsend time of tide for high and low water slacks. For small tides add 1 hour and 30 minutes to the Port Townsend times to obtain high or low water slack.

(8) At Hole in the Wall, add 45 minutes to Port Townsend time of tide.

(9) At Seechelt Rapids, add 4 hours 30 minutes to the Port Townsend time of the large tides and 4 hours to the time of the small tides.

NOTE.—The time of slack water for small tides is more uncertain than for the large tides.

These rules were furnished by Capt. J. T. Walbran, commanding D. G. S. *Quadra*.

*Chatham Strait, Alaska.*

To find the approximate 135th meridian time of *slack water*:

At Killisnoo, Kootznahoo Roads, add 3 hours to the Sitka time of the higher high waters, and add 2 hours to the time of all other tides. The current turns from ESE. to WNW. between high and low water, and from WNW. to ESE. between low and high water.

**TABLE 10.—MEAN LOCAL TIME OF SUN RISE AND SUN SET.**











































TABLE 10.—MEAN LOCAL TIME OF SUN SET.

[illegible]



Declination sun.	Ap. prox. date.	Beginning of morning twilight—North latitude.																		
		0°	10°	20°	30°	40°	45°	50°	55°	60°	62½°	65°	67½°	70°	75°	80°	90°			
23 05S	Jan. 1	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	Twilight begins Jan. 30.		
21 08	16	4 45	5 02	5 17	5 31	5 45	5 52	6 00	6 09	6 19	6 24	6 31	6 38	6 47	6 57	7 11	7 59			
17 39	31	4 52	5 07	5 21	5 33	5 45	5 51	5 57	6 04	6 11	6 16	6 20	6 25	6 31	6 47	7 16	7 59			
13 01S	Feb. 15	4 58	5 10	5 20	5 30	5 38	5 41	5 45	5 48	5 51	5 53	5 54	5 55	5 57	5 59	6 04	6 10			
7 30S	Mar. 2	5 00	5 04	5 07	5 06	5 03	5 00	4 56	4 49	4 39	4 33	4 24	4 13	3 59	3 11	.....	.....	Sun rises Mar. 19.		
1 39S	17	4 57	4 57	4 54	4 49	4 39	4 32	4 23	4 09	3 50	3 37	3 20	2 58	2 26	.....	.....	.....			
4 15N	Apr. 1	4 52	4 48	4 41	4 30	4 13	4 01	3 45	3 23	2 50	2 27	1 51	0 38	.....	.....	.....	.....			
9 51N	16	4 47	4 38	4 26	4 10	3 45	3 28	3 03	2 29	1 27	.....	.....	.....	.....	.....	.....	.....			
14 50N	May 1	4 43	4 30	4 14	3 51	3 18	2 54	2 20	1 20	It is either twilight or continuous daylight (Table 10) throughout the whole 24 hours of each day, between—										
18 55	16	4 40	4 24	4 04	3 36	2 54	2 22	1 30	.....											
21 48	31	4 40	4 21	3 57	3 26	2 36	1 55	0 22	May 9	Apr. 23	Apr. 15	Apr. 8	Apr. 2	Mar. 26	Mar. 14	Mar. 1	.....	Sun sets Sept. 25.		
23 17	June 15	4 41	4 21	3 56	3 22	2 27	1 40	June 2	and	and	and	and	and	and	and	and	and			
23 14N	30	4 45	4 25	3 59	3 25	2 31	1 44	July 16	Aug. 6	Aug. 22	Aug. 30	Sept. 5	Sept. 12	Sept. 17	Oct. 2	Oct. 16	.....			
21 40N	July 15	4 48	4 29	4 06	3 34	2 45	2 06	0 37	.....	.....	.....	.....	.....	.....	.....	.....	.....			
18 43	30	4 50	4 34	4 14	3 47	3 05	2 34	1 43	.....	.....	.....	.....	.....	.....	.....	.....	.....	Sun sets Sept. 25.		
14 37	Aug. 14	4 50	4 38	4 22	3 59	3 27	3 03	2 29	1 31	.....	.....	.....	.....	.....	.....	.....	.....			
9 39N	29	4 48	4 39	4 28	4 11	3 47	3 30	3 06	2 33	1 32	.....	.....	.....	.....	.....	.....	.....			
4 07N	Sept. 13	4 44	4 40	4 33	4 22	4 05	3 53	3 38	3 16	2 44	2 20	1 46	0 38	.....	.....	.....	.....			
1 42S	28	4 39	4 39	4 37	4 31	4 22	4 15	4 06	3 52	3 33	3 20	3 03	2 45	2 02	.....	.....	.....	Twilight ends Nov. 14.		
7 28	Oct. 13	4 34	4 34	4 40	4 40	4 37	4 34	4 30	4 23	4 13	4 06	3 58	3 47	3 33	2 44	.....	.....			
12 51S	28	4 30	4 38	4 45	4 50	4 53	4 53	4 53	4 51	4 49	4 46	4 43	4 39	4 34	4 16	3 35	.....			
17 29S	Nov. 12	4 29	4 41	4 51	5 00	5 08	5 13	5 15	5 18	5 21	5 22	5 23	5 24	5 25	5 27	5 26	.....			
20 59	27	4 30	4 45	4 58	5 11	5 22	5 28	5 34	5 41	5 48	5 52	5 57	6 02	6 07	6 23	6 50	.....	Twilight ends Nov. 14.		
23 02	Dec. 12	4 35	4 52	5 07	5 21	5 35	5 42	5 50	5 59	6 08	6 14	6 21	6 28	6 36	6 51	7 48	.....			
23 22S	27	4 42	4 59	5 16	5 29	5 43	5 51	5 59	6 08	6 18	6 24	6 31	6 39	6 48	7 14	8 04	.....			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....			
Declination sun.	Ap. prox. date.	End of evening twilight—North latitude.																		
		0°	10°	20°	30°	40°	45°	50°	55°	60°	62½°	65°	67½°	70°	75°	80°	90°			
23 03S	Jan. 1	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	Twilight begins Jan. 30.		
21 02	16	7 22	7 05	6 50	6 36	6 22	6 15	6 07	5 58	5 48	5 43	5 36	5 29	5 20	5 10	4 56	4 09			
17 31	31	7 27	7 12	6 59	6 47	6 35	6 29	6 23	6 16	6 09	6 05	6 00	5 55	5 49	5 35	5 56	.....			
12 51S	Feb. 15	7 29	7 17	7 07	6 58	6 50	6 46	6 43	6 40	6 37	6 35	6 34	6 33	6 32	6 31	6 31	.....			
7 18S	Mar. 2	7 25	7 21	7 19	7 19	7 22	7 25	7 30	7 37	7 47	7 54	8 03	8 14	8 28	9 19	.....	.....	Sun rises Mar. 19.		
1 27S	17	7 21	7 21	7 23	7 29	7 38	7 46	7 56	8 09	8 29	8 42	8 59	9 22	9 55	.....	.....	.....			
4 26N	Apr. 1	7 16	7 21	7 28	7 39	7 56	8 08	8 24	8 47	9 20	9 45	10 21	11 47	.....	.....	.....	.....			
10 01N	16	7 13	7 22	7 34	7 50	8 16	8 38	8 57	9 32	10 40	.....	.....	.....	.....	.....	.....	.....			
14 59N	May 1	7 12	7 24	7 41	8 04	8 37	9 01	9 36	10 37	It is either twilight or continuous daylight (Table 10) throughout the whole 24 hours of each day, between—								Sun sets Sept. 25.		
19 02	16	7 13	7 29	7 49	8 17	8 59	9 32	10 24	.....											
21 53	31	7 15	7 34	7 58	8 30	9 19	10 00	11 39	May 9	Apr. 23	Apr. 15	Apr. 8	Apr. 2	Mar. 26	Mar. 14	Mar. 1	.....			
23 18N	June 15	7 19	7 39	8 04	8 38	9 33	10 20	June 2	and	and	and	and	and	and	and	and	and			
23 12N	30	7 22	7 42	8 07	8 41	9 35	10 22	July 16	Aug. 6	Aug. 22	Aug. 30	Sept. 5	Sept. 12	Sept. 17	Oct. 2	Oct. 16	.....	Sun sets Sept. 25.		
21 35N	July 15	7 23	7 42	8 05	8 37	9 26	10 05	11 31	.....	.....	.....	.....	.....	.....	.....	.....	.....			
18 36	30	7 24	7 38	7 58	8 25	9 06	9 38	10 27	.....	.....	.....	.....	.....	.....	.....	.....	.....			
14 28	Aug. 14	7 19	7 31	7 47	8 09	8 42	9 05	9 39	10 35	.....	.....	.....	.....	.....	.....	.....	.....			
9 29N	29	7 14	7 22	7 34	7 50	8 14	8 31	8 54	9 28	10 26	.....	.....	.....	.....	.....	.....	.....	Twilight ends Nov. 14.		
3 55N	Sept. 13	7 08	7 12	7 19	7 30	7 46	7 58	8 13	8 35	9 06	9 30	10 03	11 04	.....	.....	.....	.....			
1 54S	28	7 03	7 08	7 04	7 10	7 19	7 26	7 36	7 48	8 07	8 20	8 36	8 58	9 28	.....	.....	.....			
7 40	Oct. 13	6 59	6 55	6 52	6 52	6 55	6 58	7 02	7 09	7 18	7 25	7 38	7 44	7 58	8 45	.....	.....			
13 02S	28	6 58	6 49	6 43	6 38	6 35	6 34	6 34	6 35	6 38	6 40	6 43	6 47	6 62	7 09	7 46	.....	Twilight ends Nov. 14.		
17 38S	Nov. 12	7 00	6 48	6 37	6 28	6 20	6 16	6 13	6 10	6 07	6 05	6 04	6 02	6 02	5 59	5 59	.....			
21 06	27	7 05	6 50	6 37	6 24	6 13	6 07	6 00	5 54	5 46	5 42	5 38	5 33	5 27	5 11	4 43	.....			
23 04	Dec. 12	7 12	6 55	6 40	6 26	6 12	6 05	5 57	5 48	5 38	5 33	5 26	5 19	5 10	4 46	3 59	.....			
23 21S	27	7 20	7 03	6 47	6 33	6 19	6 11	6 03	5 54	5 43	5 38	5 31	5 23	5 14	4 49	3 58	.....	Twilight ends Nov. 14.		
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....			

☉ Sun does not rise; twilight lasts from morning to evening, being strongest at noon.

TABLE 11.—MEAN LOCAL TIME OF ASTRONOMICAL TWILIGHT.

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Beginning of morning twilight—South latitude.																				
Declination sun.	Approx. date.	0°	10°	20°	30°	40°	45°	50°	55°	60°	62½°	65°	67½°	70°	75°	80°	90°			
23 05S	Jan. 1	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.			
21 08	16	4 45	4 25	4 00	3 26	2 32	1 46	Jan. 11	Nov. 10	It is either twilight or continuous daylight (Table 10) throughout the whole 24 hours of each day, between—										
17 39	31	4 58	4 43	4 24	3 58	3 19	2 40	2 05	1 00	Feb. 2	Oct. 26	Oct. 19	Oct. 12	Oct. 5	Sept. 29	Sept. 15	Sept. 2			
13 01S	Feb. 15	5 00	4 49	4 35	4 14	3 45	3 23	2 53	2 06	Feb. 18	Feb. 25	Mar. 3	Mar. 10	Mar. 16	Mar. 29	Apr. 11				
7 30S	Mar. 2	5 00	4 53	4 43	4 29	4 08	3 53	3 33	3 04	2 19	1 40							Sun sets		
1 39S	17	4 57	4 54	4 49	4 41	4 27	4 17	4 06	3 47	3 21	3 03	2 39	2 04	0 51				Mar. 23.		
4 15N	Apr. 1	4 52	4 54	4 54	4 51	4 44	4 39	4 31	4 21	4 07	3 57	3 44	3 28	3 06	1 37					
9 51N	16	4 47	4 53	4 57	4 59	4 59	4 57	4 54	4 50	4 44	4 39	4 34	4 26	4 16	3 43	2 19				
14 50N	May 1	4 43	4 53	5 01	5 07	5 12	5 14	5 15	5 16	5 16	5 15	5 14	5 12	5 09	5 00	4 38		Twilight ends		
18 55	16	4 40	4 52	5 06	5 15	5 24	5 29	5 33	5 38	5 42	5 45	5 47	5 50	5 53	5 60	5 11		May 12.		
21 48	31	4 40	4 55	5 09	5 22	5 35	5 41	5 48	5 55	6 04	6 08	6 13	6 19	6 26	6 45	5 20				
23 17	June 15	4 41	4 58	5 14	5 28	5 42	5 50	5 58	6 06	6 17	6 23	6 29	6 37	6 46	7 12	5 01				
23 14N	30	4 45	5 02	5 17	5 31	5 45	5 53	6 01	6 09	6 20	6 25	6 32	6 40	6 49	7 14	5 03				
21 40N	July 15	4 48	5 04	5 17	5 32	5 43	5 49	5 56	6 03	6 11	6 16	6 20	6 27	6 33	6 52	5 25		Twilight begins		
18 43	30	4 50	5 03	5 14	5 25	5 34	5 38	5 43	5 47	5 51	5 53	5 56	5 58	6 01	6 07	5 16		Aug. 2.		
14 37	Aug. 14	4 50	5 00	5 08	5 14	5 19	5 21	5 22	5 22	5 22	5 21	5 19	5 17	5 14	5 04	4 40				
9 39N	29	4 48	4 54	4 58	5 00	4 59	4 58	4 55	4 50	4 43	4 39	4 32	4 25	4 14	3 40	2 12				
4 07N	Sept. 13	4 44	4 46	4 46	4 42	4 36	4 30	4 23	4 12	3 57	3 47	3 35	3 19	2 56	1 24			Sun rises		
1 42S	28	4 39	4 36	4 31	4 23	4 09	4 00	3 47	3 29	3 03	2 45	2 20	1 44	0 30				Sept. 21.		
7 28	Oct. 13	4 34	4 27	4 17	4 03	3 42	3 27	3 07	2 39	1 53	1 15									
12 51S	28	4 30	4 19	4 04	3 44	3 15	2 54	2 24	1 38											
17 29S	Nov. 12	4 29	4 14	3 55	3 29	2 49	2 22	1 38	Nov. 10	It is either twilight or continuous daylight (Table 10) throughout the whole 24 hours of each day, between—										
20 59	27	4 30	4 12	3 50	3 19	2 32	1 55	0 42	Feb. 2	Oct. 26	Oct. 19	Oct. 12	Oct. 5	Sept. 29	Sept. 15	Sept. 2				
23 02	Dec. 12	4 35	4 15	3 50	3 16	2 23	1 37	Dec. 3	Jan. 11	Feb. 18	Feb. 25	Mar. 3	Mar. 10	Mar. 16	Mar. 29	Apr. 11				
23 22S	27	4 42	4 22	3 57	3 22	2 28	1 40	Jan. 11												

End of evening twilight—South latitude.																				
Declination sun.	Approx. date.	0°	10°	20°	30°	40°	45°	50°	55°	60°	62½°	65°	67½°	70°	75°	80°	90°			
23 03S	Jan. 1	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.	h. m.			
21 02	16	7 22	7 41	8 07	8 41	9 34	10 20	Jan. 11	Nov. 10	It is either twilight or continuous daylight (Table 10) throughout the whole 24 hours of each day, between—										
17 31	31	7 29	7 44	8 03	8 29	9 07	9 36	10 20	Feb. 2	Oct. 26	Oct. 19	Oct. 12	Oct. 5	Sept. 29	Sept. 15	Sept. 2				
12 51S	Feb. 15	7 28	7 39	7 54	8 14	8 43	9 05	9 34	10 20	Feb. 18	Feb. 25	Mar. 3	Mar. 10	Mar. 16	Mar. 29	Apr. 11				
7 18S	Mar. 2	7 25	7 32	7 41	7 55	8 16	8 31	8 51	9 19	10 03	10 41							Sun sets		
1 27S	17	7 21	7 23	7 28	7 36	7 49	7 59	8 11	8 29	8 54	9 12	9 36	10 10	11 07				Mar. 23.		
4 26N	Apr. 1	7 16	7 14	7 14	7 17	7 24	7 29	7 36	7 46	8 00	8 10	8 22	8 38	9 00	10 25					
10 01N	16	7 13	7 07	7 03	7 00	7 01	7 02	7 04	7 08	7 15	7 20	7 25	7 33	7 42	8 14	9 35				
14 59N	May 1	7 12	7 02	6 53	6 47	6 42	6 40	6 38	6 38	6 38	6 38	6 39	6 41	6 43	6 51	7 13		Twilight ends		
19 02	16	7 13	6 59	6 48	6 37	6 28	6 23	6 19	6 14	6 09	6 07	6 04	6 01	5 58	5 50	5 39		May 12.		
21 53	31	7 15	6 59	6 45	6 33	6 20	6 13	6 06	5 59	5 51	5 46	5 41	5 35	5 28	5 08	4 33				
23 18	June 15	7 19	7 02	6 47	6 32	6 18	6 10	6 02	5 54	5 43	5 37	5 31	5 23	5 14	4 48	3 59				
23 12N	30	7 22	7 05	6 50	6 36	6 21	6 14	6 06	5 57	5 47	5 41	5 35	5 27	5 18	4 53	4 05				
21 35N	July 15	7 23	7 08	6 54	6 41	6 29	6 22	6 16	6 09	6 01	5 56	5 51	5 46	5 39	5 21	4 49		Twilight begins		
18 36	30	7 24	7 09	6 58	6 48	6 39	6 35	6 31	6 26	6 22	6 20	6 18	6 15	6 13	6 07	5 59		Aug. 2.		
14 28	Aug. 14	7 19	7 09	7 02	6 55	6 51	6 49	6 48	6 48	6 49	6 50	6 51	6 53	6 56	7 07	7 39				
9 29N	29	7 14	7 08	7 04	7 03	7 03	7 05	7 08	7 13	7 20	7 25	7 31	7 39	7 50	8 25	9 57				
3 55N	Sept. 13	7 08	7 07	7 07	7 10	7 17	7 23	7 30	7 41	7 56	8 07	8 20	8 37	8 59	10 36			Sun rises		
1 54S	28	7 03	7 05	7 11	7 19	7 33	7 43	7 56	8 14	8 41	9 00	9 24	10 01	11 29				Sept. 21.		
7 40	Oct. 13	6 59	7 06	7 16	7 30	7 52	8 07	8 27	8 56	9 42	10 23									
13 02S	28	6 58	7 09	7 24	7 44	8 14	8 35	9 05	9 52											
17 38S	Nov. 12	7 00	7 15	7 34	8 00	8 39	9 08	9 52	Nov. 10	It is either twilight or continuous daylight (Table 10) throughout the whole 24 hours of each day, between—										
21 05	27	7 05	7 23	7 46	8 16	9 04	9 42	10 56	Feb. 2	Oct. 26	Oct. 19	Oct. 12	Oct. 5	Sept. 29	Sept. 15	Sept. 2				
23 04	Dec. 12	7 12	7 32	7 57	8 31	9 24	10 11	Dec. 3	Jan. 11	Feb. 18	Feb. 25	Mar. 3	Mar. 10	Mar. 16	Mar. 29	Apr. 11				
23 21S	27	7 20	7 40	8 05	8 39	9 34	10 22	Jan. 11												

⊕ Sun does not rise; twilight lasts from morning to evening, being strongest at noon.

TABLE 12.—REDUCTION OF LOCAL MEAN TIME OF SUNRISE AND SUNSET  
TO STANDARD MERIDIAN TIME.

Difference of longitude between local and standard meridian.	Reduction to be applied to local mean time.	Difference of longitude between local and standard meridian.	Reduction to be applied to mean local time.	Difference of longitude between local and standard meridian.	Reduction to be applied to mean local time.
° / ° /	Minutes.	° / ° /	Minutes.	°	Hours.
0 00 to 0 07	0	7 23 to 7 37	30	15	1
0 08 to 0 22	1	7 38 to 7 52	31	30	2
0 23 to 0 37	2	7 53 to 8 07	32	45	3
0 38 to 0 52	3	8 08 to 8 22	33	60	4
0 53 to 1 07	4	8 23 to 8 37	34	75	5
1 08 to 1 22	5	8 38 to 8 52	35	90	6
1 23 to 1 37	6	8 53 to 9 07	36	105	7
1 38 to 1 52	7	9 08 to 9 22	37	120	8
1 53 to 2 07	8	9 23 to 9 37	38	135	9
2 08 to 2 22	9	9 38 to 9 52	39	150	10
2 23 to 2 37	10	9 53 to 10 07	40	165	11
2 38 to 2 52	11	10 08 to 10 22	41	180	12
2 53 to 3 07	12	10 23 to 10 37	42		
3 08 to 3 22	13	10 38 to 10 52	43		
3 23 to 3 37	14	10 53 to 11 07	44		
3 38 to 3 52	15	11 08 to 11 22	45		
3 53 to 4 07	16	11 23 to 11 37	46		
4 08 to 4 22	17	11 38 to 11 52	47		
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If local meridian is east of standard meridian, subtract from local mean time.

If local meridian is west of standard meridian, add to local mean time.

For differences of longitude less than  $15^{\circ}$ , use the first part of the table. For greater differences take from the last part of the table the hour corresponding to the nearest tabulated value less than the given difference, and from the first part of the table the minutes corresponding to the remainder obtained by subtracting this tabulated value from the given difference.

# INDEX.

This Index gives the maritime States of the United States and Canada; the principal countries of the world; important islands and bodies of water, and the 70 ports for which full predictions are given, these ports being printed in small capitals here and also in Table 3.

In order to find any station given in Table 3, find in this Index the name of the country, State, or body of water in or upon which the station is located; the reference will be to the beginning of the list of stations given under that heading, the particular port required appearing in its geographic sequence.

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## NOTE.

In the preparation of these tide tables the best available material has been used; but the predictions and tidal constants are necessarily of unequal merit for different parts of the globe, owing to a lack of properly distributed observations upon which to base conclusions.

It is our purpose to substitute better values, as soon as obtained, wherever those given may prove unsatisfactory, and therefore any tidal observations, even if consisting of only a few tides, will be very acceptable.

To persons willing to aid in the collecting of tidal data, we would suggest to observe the height of the sea at regular intervals of one hour, day and night, whenever practicable, rather than the high and low waters only for the same period. Observations taken even at longer intervals of time, such as every two or three hours, will be useful.

It must be borne in mind that these tables aim to give the times and heights of high and low waters, and *not* the times of turning of the current or of slack water. For ocean stations there is usually but little difference between the time of high or low water and the beginning of ebb or flood current; but for places in narrow channels, land-locked harbors, or on tidal rivers the time of slack current may differ by two or three hours from the time of high or low water stand, and local knowledge is required to enable one to make the proper allowance for this delay in the condition of tidal currents.

It is desired to collect information relating to tidal currents with the view of including it in subsequent issues of this publication.

All persons are invited to send information or suggestions for increasing the usefulness of these Tide Tables to the

SUPERINTENDENT OF THE COAST AND GEODETIC SURVEY,

WASHINGTON, D. C., U. S. A.













